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Insight

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How does an online supermarket in India impact farmers?

Practical thinking on investing for development

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Big Basket, a CDC investee business, is India's largest online grocery, delivering over 5 million orders per month to customers in 25 cities across India. Big Basket's business model is tailored to serve the needs of India's growing urban consumers as well as its rural farmer suppliers. The business is also a major local job creator with 8,000 jobs.

This Insight study explores the impact of Big Basket's 'farm-to-fork' value chain model on its fruit and vegetable farmer suppliers, focusing on their agriculture practices, productivity, pricing and access to markets. The study was conducted by Sattva Consulting in partnership with CDC Group and Big Basket. Through interviews and focus groups with over 400 farmers across six states combined with other data sources, our research explores how Big Basket serves the needs of rural farmers and provides opportunities to improve their livelihoods.

Improving agricultural productivity and helping to boost farmer incomes are important for achieving inclusive growth in India. Nearly half of working-age adults work in agriculture, and the sector is estimated to contribute over 15 per cent of GDP. However, farmers face various barriers to higher incomes and productivity – they often lack strong market linkages and struggle to earn fair prices for their crops.

With about 9,500 farmers integrated in its supply chain, including over 3,000 farmers who are actively engaged, Big Basket has introduced some innovative business practices that are helping to address these challenges. Through its unique end-to-end supply chain model, Big Basket provides farmers a direct and secure route to market, especially for higher value crops. Farmers selling to Big Basket receive better prices for their produce and save on market-related charges such as labour costs, weighing charges and commissions. They also receive timely payments through an electronic payment system, helping them to manage working capital and operational expenses.

Key insights from our study include:

- Big Basket reaches a substantial number of smallholder farmers through its supply chain, although its farmers' landholdings are typically larger than the national average. Half (51 per cent) of Big Basket's farmer suppliers are smallholder farmers with less than 2 hectares (5 acres) of land, compared with 86 per cent of farmers throughout India in this category.
- 83 per cent of farmers report that Big Basket gives them the best price for their produce, through an innovative and transparent pricing system. On average, the prices Big Basket offers to farmers are 10–14 per cent higher than the local market average.
- Big Basket helps farmers to access information, adopt better practices and improve productivity. Farmers report that they regularly interact with Big Basket's agronomist and benefit from the support received.
- Big Basket farmers are very satisfied with the business. Almost all (98 per cent) want to continue supplying to Big Basket and 96 per cent would recommend the company to other farmers.

Overall, our research finds that Big Basket's farmer model is impactful and adds real value to the business. The security of knowing what to plant, who to sell to and for how much helps enable farmers to plan their lives, make savings, pay their workers and invest for their futures. We also identify some promising opportunities to build impact even further.

We hope this study will provide some fresh evidence and insights into how a smart business model tailored to the local context and powered by technology can make lives better.

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01

Big Basket's 'farm to fork' model: an integrated supply chain

Improving agricultural productivity and helping to boost farmer incomes are important priorities for India's path to inclusive growth. Nearly half of the workforce works in agriculture, and the sector is estimated to contribute over 15 per cent of GDP.¹ Yet farmers are often among the poorest members of society – the average income of agricultural households is 8,931 rupees (US\$130) per month – and worker productivity in the sector is low.²

Smallholder farmers face a range of challenges and often struggle to earn fair and stable prices for their produce. Lacking negotiating power and with limited access to pricing information or reliable, large-scale buyers, they often have poor options to sell their crops.

Big Basket is directly addressing some of these challenges, by helping its farmer suppliers access information and advice, link into large markets to sell their produce and get a higher price for it.

Big Basket is India's largest online grocery retailer, delivering fresh fruits and vegetables, meat and dairy, groceries, personal care and household items via its website and mobile applications. It caters to about 741,000 customers monthly, offering 18,000 products and more than 1,000 brands. Fresh fruit and vegetables make up about 18 per cent of its overall sales.

The company has pioneered a business model innovation by operating a fully integrated supply chain model (Figure 1). Big Basket has partnered with farmers who are completely independent and can choose to supply to Big Basket or other retailers. The end-to-end supply chain and logistics network is fully controlled by Big Basket and driven by an analytics platform which drives business intelligence, inventory management, vendor management and direct payments to suppliers. Other companies typically only focus on part of the supply chain, for instance sourcing produce or distribution to end consumers.

3,000+

farmers are actively engaged with Big Basket's supply chain

1 ILO (2018). India Wage Report: Wage policies for decent work and inclusive growth.

2 NABARD All India Rural Financial Inclusion Survey 2016-2017 and World Bank India: Systematic Country Diagnostic, 2018.

Farmers are core to Big Basket's business model and strengthen its competitive advantage. Big Basket has invested significantly in infrastructure and brainpower to cultivate a reliable supply chain and build trusted relationships with its suppliers. Having a responsive supply chain is essential to fulfil customer orders on time, seven days a week. The backbone of Big Basket's supply chain is its rural collection centres which function as service centres for farmers. Farmers can drop off their produce daily at the centres, where it gets sorted, graded and shipped to Delhi, Bangalore, Hyderabad, Chennai, Pune or Mumbai, where most consumer demand is located. The end-to-end supply chain allows significant cost savings by cutting out middlemen while also enabling Big Basket and its farmer suppliers to more flexibly adjust their produce supply in response to consumer demands and preferences.

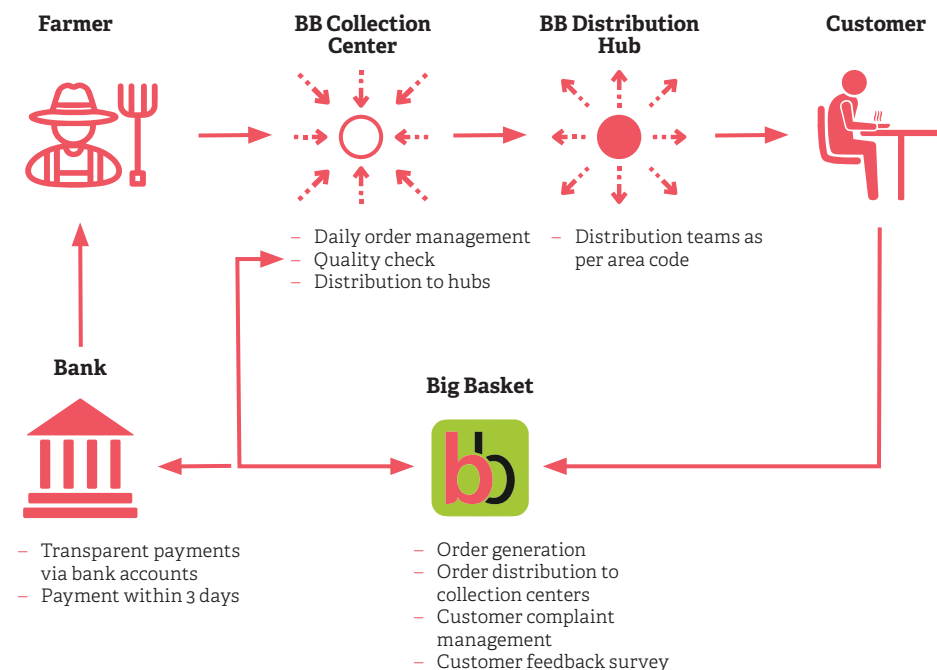


Figure 1: Big Basket's supply chain



02

Big Basket's impact on farmers

This section summarises the methodology and findings from interviews and focus groups with over 400 farmers to understand what they think of Big Basket and how the company impacts their livelihoods. This includes a comparison group of farmers who have never supplied the company and some benchmarking with other data sources on farmers in India.

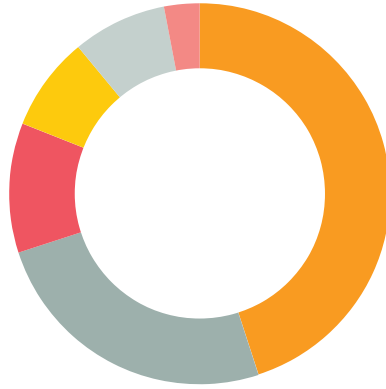
2.1 Study methodology

The main data source for the findings described in this study come from a quantitative survey conducted by Sattva Consulting in early 2019 involving telephone interviews with 383 farmers. This included 323 farmers actively engaged with Big Basket as well as 60 who had never supplied to Big Basket as a comparison group (see Annex).³ Sattva adopted a multi-stage, random sampling approach to selecting farmers across ten districts in six states. To ensure appropriate representativeness, the sample size drawn across locations was proportionate to the number of active Big Basket farmers in each location.

³ The non-Big Basket farmer sample was drawn from farmers who had expressed interest in supplying to Big Basket and were registered in Big Basket's database but had not engaged.

Big Basket farmers

Karnataka	45.2%
Maharashtra	25.1%
Andhra Pradesh	11.1%
New Delhi	8.0%
Telangana	7.7%
Tamil Nadu	2.8%



Non-Big Basket farmers

Karnataka	46.7%
Maharashtra	8.3%
Andhra Pradesh	15.0%
New Delhi	5.0%
Telangana	15.0%
Tamil Nadu	10.0%

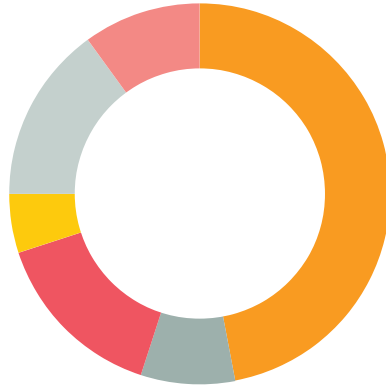


Figure 2: Percent of study respondents across states

The farmer survey data was supplemented with qualitative data from in-person interactions with additional farmers through focus groups along with interviews with Big Basket staff and agronomists in the field.

2.2. Who are the farmers supplying to Big Basket?

Big Basket has over 3,000 actively engaged farmers, 51 per cent of whom can be considered marginalised and smallholders with less than 2 hectares (5 acres) of land. This is lower than the average of 86 per cent of farmers who fit into the category across the country.⁴ In other words, the data suggest that Big Basket has significant reach to some poorer segments of society, although its farmers tend to have larger landholdings than average.

51%

of Big Basket's 3,000 actively engaged farmers can be considered marginalised smallholders with less than 2 hectares (5 acres) of land

<2.5 acres	20%
2.5–5 acres	31%
5–7.5 acres	12%
7.5–10 acres	13%
>10acres	24%

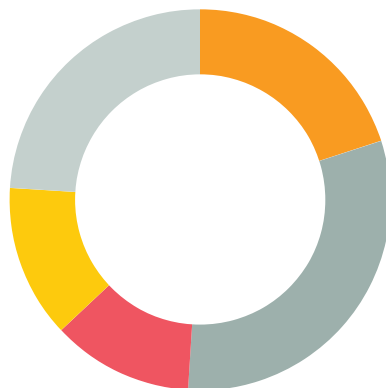


Figure 3: Size of land used for farming by Big Basket farmers

Only a fifth of Big Basket farmers have less than 1 hectare (2.5 acres) of land, compared with about 70 per cent of farmers nationally. However, Big Basket operates in some districts that have a relatively high percentage of smallholders in the state; this is shown in the map of Karnataka, for instance (Figure 4).

⁴ All India Agriculture Census 2015-16. The average percentages of smallholders are slightly lower in some of the states where Big Basket operates, for instance, 80–81 per cent in Karnataka and Maharashtra.

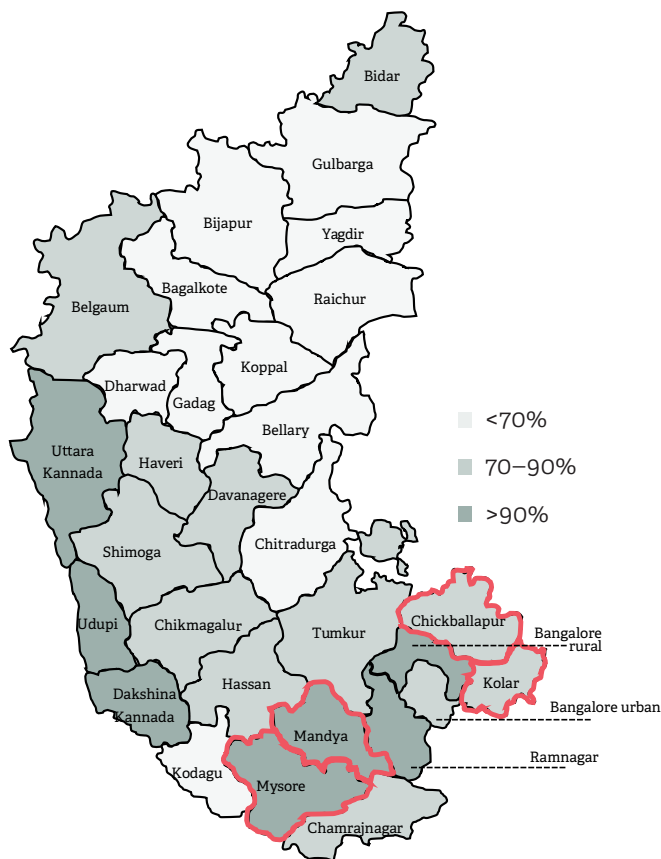


Figure 4: Percent of smallholder farmers across districts in Karnataka

The map shows the percent of farmers with land size 2 hectares or less. Big Basket supplies from farmers in the districts outlined in red.

Nearly all (about 97 per cent) of Big Basket suppliers have a male household head registered as the main supplier. It is likely that female farmers in these families make significant contributions as additional suppliers who are not captured in the data, however, given that women are estimated to comprise 42 per cent of the agricultural labour force in the country.⁵ It could be useful to collect further data focused on female suppliers to better understand and illuminate Big Basket's relations with female farmer suppliers.

Big Basket's farmers are highly satisfied with their experience engaging with the company. Almost all (98 per cent) of the farmers surveyed expressed that they wished to continue supplying to Big Basket and 96 per cent would recommend the business to other farmers.



We appreciate the speedy manner in which money is dispatched and we believe that a higher amount will be paid for higher quality.

Big Basket farmer at Chikbalapur collection centre

98%

of Big Basket's farmers want to continue supplying to the business, and 96% of them would recommend the company to other farmers

Farmer profile

Malay has been a supplier to Big Basket in Mysore for the past 2.5 years and was one of Big Basket's first organic farmers. Big Basket provides him inputs such as nets, seeds, access to an agronomist and demo equipment. Since supplying to Big Basket, his income has more than doubled to about 60,000 rupees per acre per month due to decreased input costs, the 20 per cent premium for organic produce paid by Big Basket and more diversified crops.

Malay reports his challenges are that organic farming is more labour intensive than inorganic methods, yields are less predictable and it is harder to control pests. He has recruited more than 20 other farmers to Big Basket and teaches them organic farming practices on his three-acre plot.

⁵ National Council of Applied Economic Research (2018). Gender gap in land ownership.

2.3 Impact on income

Big Basket directly helps farmers increase their income. This happens through multiple channels: paying farmers higher prices for goods, enabling savings on costs that are usually incurred when supplying to the market and ensuring more reliable payments.

The vast majority (83 per cent) of farmers report that Big Basket gives them the best price for their produce. Meanwhile, a small minority reports to get a better price from other companies (11 per cent) or the local market (mandi) (6 per cent). Big Basket's transparent pricing system ensures that farmers will at least break even with their operational costs.

On average, the prices Big Basket offers to farmers are 10–14 per cent higher than local market prices.⁶ This is due to Big Basket's daily dynamic price-setting policy, where regional buying heads find the midpoint between the price offered in local markets and the price that Big Basket can charge to customers in the large cities (Figure 5). More than half (52 per cent) of Big Basket farmers are able to sell more than 75 per cent of their produce to Big Basket, leading to large income gains.

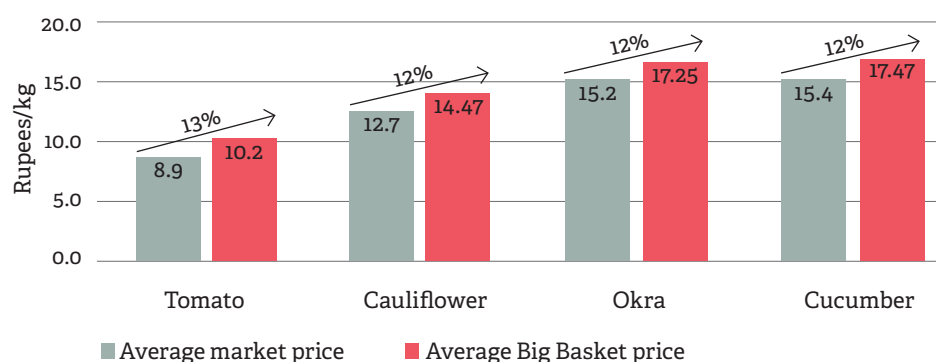


Figure 5: Price difference between Big Basket and local markets Rupees/kg for four markets in Karnataka and Maharashtra, 2018

Higher prices and cost savings through selling to Big Basket can translate into a near doubling of farmers' daily income. Farmers selling to Big Basket save on several costs that would otherwise be incurred from selling in the local market, such as the government-mandated market commission, labour charges for unloading produce and charges incurred for weighing produce. These savings directly translate into higher profits for Big Basket's farmers (Figure 6).

Item	Big Basket farmers	Other farmers
Price for 10kg tomatoes	100	87
Market commission	0	8.7
Weighing cost	0	5
Labour cost	0	5
Transportation cost	7	10
Profit	93	58.3

Figure 6: Stylised example of potential savings by farmers from selling to Big Basket⁷

Big Basket's collection centres are conveniently located, helping farmers to save further on transport time and costs. Farmers report that the average distance to their Big Basket collection centre is 15 kilometres compared with 21 kilometres to the local agricultural produce market committee.

Prompt payments, better ability to manage working capital and operational expenses are key benefits mentioned by Big Basket farmers. Farmers report that Big Basket's payment method and processing cycle help them more efficiently manage their operational costs.



When it comes to dealing with farmers, we practise profit optimisation, not profit maximisation.

Vipul Mittal, National Category Head for Fruits and Vegetables at Big Basket

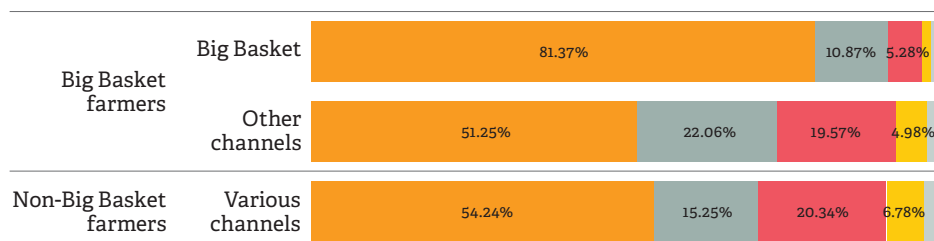
83%

of farmers report that Big Basket gives them the best price for their produce

⁶ Data collected in Sattva Consulting's survey of Big Basket farmer payout data for the period January 2018 – December 2018 across ten crops suggest that prices were 14 per cent higher. Further benchmarking and analysis by CDC estimates a 10 per cent difference in prices over a longer time period and across a wider range of crops.

⁷ This is a stylised example based on the following data sources and assumptions: tomato prices from Big Basket database; market commission, labour cost and weighing cost based on focus group discussions with farmers conducted by Sattva; transportation cost estimated as 0.5 rupees per kilometre and extrapolated based on Sattva survey data of average distance between farmer and market. In reality income is affected by many more variables.

The vast majority (82 per cent) of Big Basket farmers receive payment within three days of the sale of their produce, compared with only half of non-Big Basket farmers (Figure 7). Other retail companies also process the payments directly through the bank, but their payment cycle is usually once a week or fortnight. Intermediaries and traders at the local market pay mostly in cash which takes 7–15 days.



How many days will it take for you to get the money after selling your produce?

■ 0–3 days
 ■ 4–5 days
 ■ 6–10 days
 ■ 11–15 days
 ■ >15 days

Figure 7: Farmers' waiting time to get payment for produce

2.4 Productivity and the role of the agronomist

Big Basket is helping to improve productivity by helping farmers to access reliable advice, inputs and technology. Each Big Basket collection centre has a full-time agronomist holding a graduate or post-graduate degree and dedicated to supporting local farmers. These agronomists first onboard each farmer through a personal visit, where their farm is geotagged and the required farmer details and data are entered in the 'Smartfarm' platform. They provide ongoing advice on inputs and crop schedules, and create linkages with government support programmes for farmers.

The survey confirms that 89 per cent of Big Basket farmers have access to an agronomist in person or via phone, and 56 per cent report interacting with the agronomist at least once a week. By contrast, only 47 per cent of non-Big Basket farmers have access to an agricultural expert. Big Basket farmers report that the main inputs the agronomist provides are related to pesticides, crop planning, seeds and market information (Figure 8).

What are the key inputs the agronomist gives you to improve your farming practise?

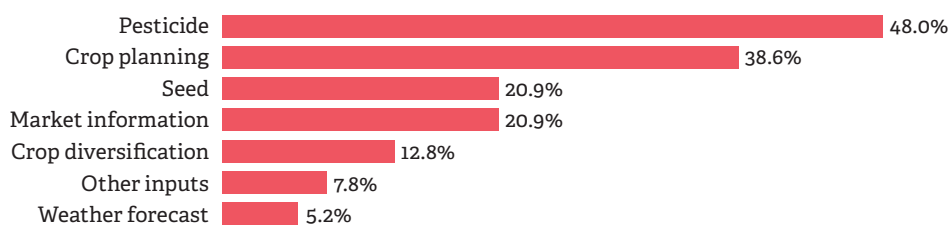


Figure 8: Advice provided by agronomists

According to farmers, regular access to Big Basket's agronomists helps them adopt better farming practices. Farmers perceive an improvement in both the quantity and the quality of their produce after receiving inputs from Big Basket's agronomists (Figure 9). Big Basket farmers report that inputs from the agronomist help them detect and control pest and insect infestation in a timely manner, for example, as well as protect the freshness of their produce through innovative techniques.

82%

of Big Basket's farmers receive payment within three days of the sale of their produce, compared to only half of non-Big Basket farmers



The association with agronomists has helped in the way we are told about the types of crops we can plant and what types of pesticides can be used.

Big Basket farmer at Malur collection centre

89%

of Big Basket's farmers have access to an agronomist

Which of the following has improved after your consultation with the agronomist from Big Basket?

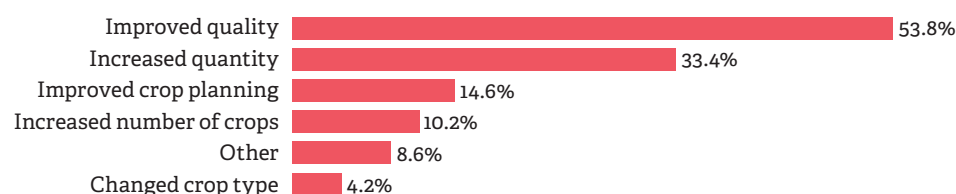


Figure 9: Outcomes associated with advice from Big Basket agronomists

2.5 Crop quality and diversification

Farmers report that Big Basket is helping them to adopt practices that improve the quality of their produce. Nearly all (98 per cent) farmers confirmed that Big Basket conducts a quality check every time they sell their produce at a collection centre. Farmers also report that the continuous monitoring by agronomists helps them understand acceptable quality standards for consumers. Farmers are motivated to improve the quality of their produce and minimise their rejection rate, which ranges from 5–15 per cent. And the agronomists report seeing these rates improve over time as farmers improve their practices.

There is some evidence that Big Basket may be helping encourage farmers to practise crop diversification. Most farmers (53 per cent) report no change in crop diversification before and after engaging with Big Basket, however 32 per cent report an increase and 15 per cent report a decrease in their number of crops. By opening markets for more diverse product categories, Big Basket has the potential to support multi-crop farming practices to help farmers develop resilience to weather changes and disasters. They also help introduce premium crops that are not usually grown in the area such as kiwis or avocados. This enables Big Basket farmers to fetch higher prices at local markets.

32%

of farmers report an increase in crop diversification after engaging with Big Basket

2.6 Organic farming and the environment

Big Basket currently procures almost one million kilograms of organic fruit and vegetables. Overall, this is about 5 per cent of its purchases. While the bulk of Big Basket's produce is still farmed in a conventional way, the company is looking ahead at how to increase impact on both consumers and farmers even further through organic production. Organic farming offers potential benefits including preserving the soil, improving biodiversity and benefitting the health of consumers and producers. The organic vegetable market in India grows annually at about 25 per cent, outpacing the 10–15 per cent growth rate for conventional food.⁸ However, conversions are challenging: it takes three years for the soil to recover from conventional agriculture. Organic farming is also more labour intensive and costlier in the short term as sourcing inputs is more challenging.

Big Basket aims to double its offer of organic vegetables and help to convert over 300 farms into organic farming over the next few years. Big Basket provides relevant support and pays farmers a 20 per cent premium on organic vegetables, which helps to encourage conversions.

⁸ FiBL (Research Institute of Organic Agriculture) and IFOAM Organics International, 2018. The World of Organic Agriculture: Statistics and Emerging Trends 2018. <https://shop.fibl.org/CHen/mwdownloads/download/link/id/1093/?ref=1>.



03

Looking forward

Big Basket's model has introduced various innovative business practices that are helping to better serve farmers' needs and support the success of the business. Based on the information gathered in this study and the perspectives of Big Basket's farmer suppliers, some potential recommendations for Big Basket include:

- Buying more produce from farmer suppliers. The single biggest recommendation from farmers surveyed was that they wished Big Basket would buy more of their produce. Big Basket is currently evaluating how to increase sourcing.
- Building up efforts to reach out to promising new farmer suppliers, including poorer smallholders and female farmers. Given that 61 per cent of non-Big Basket farmers are aware of the brand, with a majority of them expressing interest in engaging with Big Basket, there seems to be room for expanding the network. Collecting data to better understand and inform Big Basket's recruitment and engagement with female and poorer smallholder farmers might be one fruitful avenue.
- Addressing climate change issues. Big Basket is actively looking to reduce its own carbon footprint by exploring avenues to transition to electric vehicle delivery and working on climate smart agriculture innovations to benefit farmers. These areas have strong potential to make a difference to both profits and the planet.

Overall, it is clear from our research that Big Basket's farmer model adds real business value while having a positive impact on the lives of thousands of farmers. We look forward to seeing Big Basket's business continue to grow and innovate in ways that support inclusion and dynamism in India's agriculture sector, helping to improve livelihoods for the farmers in its network and beyond.

Appendix 01

Study coverage: farmer survey sample statistics

State	Location	Big Basket respondents	Non-Big Basket respondents
Karnataka	Chikballapur	67	28
	Malur	51	
	Mysore	5	
	Mandya	23	
Tamil Nadu	Palakod	9	6
Maharashtra	Manchar	81	5
Delhi	Bhaktwarpur	14	3
	Pragpura	12	
Andhra Pradesh	Ananthapur	36	9
Telangana	Vantimamidi	25	9
Total respondents		323	60

01

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