MARKET ACCESS FOR ORGANIC AND NATURAL PRODUCE

CASE STUDIES

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Research direction: Amit Khurana

Authors: Abhay Kumar Singh, Anamika Yadav, Vineet Kumar and Mohammad Abdul Halim

Editor: Archana Shankar

Cover: Ajit Bajaj

Layout: Kirpal Singh

Production: Rakesh Shrivastava and Gundhar Das

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Centre for Science and Environment
41, Tughlakabad Institutional Area
New Delhi 110 062
Phones: 91-11-40616000
Fax: 91-11-29955879
E-mail: sales@cseindia.org
Website: www.cseindia.org

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Executive summary

There has recently been considerable movement toward organic and natural farming in India. The Central as well as state governments are promoting natural and organic farming as is evident from the recent approval of Rs 1,584 crore for the National Mission on Natural Farming. The prime minister has made a strong case for using no chemicals in agriculture, preserving the land and safeguarding the environment. The Union Cabinet recently approved the formation of a national-level multi-state co-operative to support organic farming in India through the Ministry of Cooperatives in January 2023. Himachal Pradesh, Gujarat, Haryana and Rajasthan are now developing policies/plans to boost organic and/or natural farming. Civil society organizations (CSOs) in India have long supported organic and/or natural farming to help it become a widespread movement.

For a sustainable and large-scale transition, two basic issues need to be addressed. First, whether farmers know how to practise organic or natural farming, and second, whether farmers have access to markets that pay remunerative prices. Government announcements on plans to create more farmer producer organizations (FPOs), show that the issue of market access is recognized. In addition, food retail corporations and state government programmes have over the years helped connect farmers with consumers.

To better understand the role of these three important stakeholders—FPOs, food retail corporations and state governments—the Centre for Science and Environment (CSE) identified six cases from across the country to illustrate means to providing better market access to make organic and natural farming a mass movement.

For example, Bhoomgaadi, a farmers' collective formed in 2016, based in Dantewada district, Chhattisgarh, helps over 2,700 organic farmers from 122 villages overcome market-access limitations due to their remoteness. It sells around 50 products, including medicinal rice, aromatic rice, fine rice and millets in bulk as white label to distant buyers. These products are also sold under the brand Aadim at retail stores such as its own Jaivik Bazar and through the Tribal Co-operative Marketing Federation of India. It also serves cooked food at their Cafe Aadim in Dantewada. While Bhoomgadi has been able to help reduce the cost of cultivation, improve productivity and provide a good share of selling price to farmers, its challenges include reducing dependence on external grants.

Dantewada is now the only district in Chhattisgarh where no sale or promotion of chemical inputs is authorized. The collective has also helped address other local issues such as those related to nutrition and seed varieties.

Sahaja Aharam Producer Company Limited (Sahaja), formed in 2014 with support from Hyderabad-based civil society organization Centre for Sustainable Agriculture (CSA), is a federation of 19 FPOs in Telangana and Andhra Pradesh. It has helped 9,000 farmers from 11 districts successfully grow organic crops and sell over 200 products branded as Sahaja Aharam to about 4,000 consumers. The produce is sold through four Sahaja Aharam retail stores—called Sahaja Aharam Organic Stores—in two states and in many more by selling to 110 bulk buyers in different parts of the country. In addition to staples, it also sells processed ready-to-eat food; beauty, personal and healthcare products; and most importantly fresh fruits and vegetables that are otherwise difficult to procure and sell. Here too, farmers get a good proportion of the selling price. Through the federation approach, Sahaja it has been able to gain efficiency. It has shown how market-based crop planning can ensure better returns and de-risk farmers through crop diversification. While it has helped reduce the cost of cultivation and effectively leveraged technology, its challenges include limited working capital, which prevents steep scaling up despite the possibilities.

Sresta Bioproducts Limited, Hyderabad, operating since 2004, is one of India's biggest organic food retailers. It sells over 200 organic food products under its brand 24 Mantra. It aggregates produce from 40,000 certified organic farmers, covering nearly 81,000 hectares in 16 states, and sells in 550 cities across India through 7,500 outlets—including a few of its own—and over 1,800 outlets in 33 countries across the world. In addition, with over 30 per cent share, it has leveraged online selling effectively as well as its wide network of processing facilities. It has demonstrated how with an assured market, both crop intensity and diversity can be increased at a large scale.

bigbasket, an online supermarket that entered the organic food segment in 2016, shows how with an efficient supply chain, "organically grown" fruits and vegetables reach the doorstep of the consumer in reduced time. It sources fruits and vegetables directly from farmers and staples from FPOs, cooperatives and mills. Overall, it sells products of 70 different organic brands in addition to its own brands, BB Royal Organic for staples and BB Fresho Organic for fruits and vegetables. As it deals with a wide range of conventional food produce, its extensive supply chain has a huge potential to be leveraged if organic integrity is maintained.

Odisha Millets Mission (OMM), which started in 2017, now procures millets from 1.29 lakh farmers from 17,000 villages in 19 districts of Odisha. Aimed at promoting the production and household consumption of millets, it has now entered into its second phase—covering 2022–27—with a total budget of Rs 2,808 crore. OMM helped farmers grow millets by providing incentives to the tune of Rs 9,500 for three years and increasing the minimum support price to Rs 3,377 per quintal on ragi. It has helped increase consumption of millets by introducing the grain in state-level safety net programmes such as 1–2 kg of ragi per month per family as part of public distribution system and ragi laddus in integrated child development schemes. In addition, it connects to consumers through 116 kiosks and a few millet stores, cafes and millets on wheels. It creates awareness through the millet mascot Milli and brand Millet Shakti. Leveraging FPOs and women self-help groups (WSHGs) is an integral part of implementing OMM. Challenges include limited penetration in several districts barring a few, dominance of ragi among all millets with 85 per cent share, limited procurement by government and limited alternative market channels.

Prakriti Kheti Khushhal Kisan Yojana (PK3Y) started in 2018 to promote natural farming throughout Himachal Pradesh. It had several objectives, including reducing dependence on the market for inputs and increasing farmer incomes. The state is helping 9.6 lakh farmers across 12 districts to adopt natural farming practices through incentives and capacity building. Other than the inherent challenges of natural farming—it is labour intensive, less productive in the initial years, and requires substantial awareness- and capacity-building—the biggest challenge is providing access to the market. In view of this, the state has now planned several initiatives, which include the concept of self-declared certification, leveraging FPOs, captive markets, dedicated space in agriculture produce marketing committees (APMCs) and canopies. While the planning of these initiatives seems to be on track, the implementation and success remains to be seen.

It is clear through these six case studies that each stakeholder group can help connect organic and/or natural farmers to consumers in many different ways. It is also clear that there are challenges, which if addressed can help scale up market access.

This compendium puts together learnings to help stakeholders address the big challenge of providing markets to organic and/or natural produce.

SECTION A

FARMER PRODUCER ORGANIZATIONS

1. Bhoomgaadi Farmers Producer Company Limited

- Bhoomgaadi, a farmers' collective formed in 2016, is based in Dantewada district, Chhattisgarh. It helps over 2,700 organic farmers from 122 villages overcome market-access limitations due to their remoteness.
- Bhoomgaadi sells around 50 products, including medicinal rice, aromatic rice, fine rice and millets in bulk as white label to distant buyers. These products are sold under the brand Aadim in retail stores such as Bhoomgaadi's own Jaivik Bazar and through the Tribal Co-operative Marketing Federation of India.
- Bhoomgadi also serves cooked food at its own Cafe Aadim in Dantewada.
- Bhoomgadi has helped reduce the cost of cultivation, improve productivity and provide a good share of the selling price of crops to farmers.
- Its challenges include reducing dependence on external grants.
- Dantewada is now the only district in Chhattisgarh where no sale or promotion of chemical inputs is authorized.

Bhoomgaadi is a farmers' collective based in Dantewada, Chhattisgarh, and named after a local tribal festival that celebrates yield and harvest.

Map 1: Location of Dantewada

The collective is led by Akash Badave, an engineering graduate from the Birla Institute of Technology and Science, Pilani. During his work with the district administration as a Prime Minister Rural Development Fellow, it became clear to him that the lack of market linkages was the key gap for farmers in the district. To change the status quo, there was a need to build and improve market linkages to help farmers sell their produce at a fair price in this conflict and mining-hit area (see *Map 1: Location of Dantewada*).

Dantewada is a remote district in south Chhattisgarh, with poor connectivity and infrastructure. The terrain is difficult, roads are substandard and barely a few buses connect the capital city of Raipur to Dantewada. Irrigation facilities are negligible—just 100 hectare of the 102,800 hectare of total cropped area is

"Bhoomgaadi is a people's collective. It is a by-farmers, for-the-farmers initiative."
—Akash Badave, CEO Bhoomgaadi

"Bhoomgaadi people reach where the state fails to reach. As they live in a conflict-hit area, farmers in deep pockets of the land find it hard to trust government officials, but they respond well to Bhoomgaadi staff."
—Anand Netam, Deputy Director Agriculture, Dantewada

irrigated. Additionally, the human development indicators (HDIs) are fairly poor. The district has five blocks and 239 villages with a population of over 5 lakh, of which 71 per cent is tribal.

In 2016, Bhoomgaadi was formed with a one-time loan of Rs 53 lakh (plus Rs 16 lakh subsequently) from the district administration under the District Mineral Fund (DMF), which is used as working capital for procurement and inventory maintenance. DMF also provides annual support of Rs 1 crore routed through Nirmaan (a civil society organization based in Hyderabad) and used for off-site training of champion farmers, various capacity-building exercises and salaries of 122 community resource persons. In addition, Bhoomgaadi received a grant of Rs 60 lakh in aid for three years which is used for its operations and the salaries of five to seven people on Bhoomgaadi's payroll.

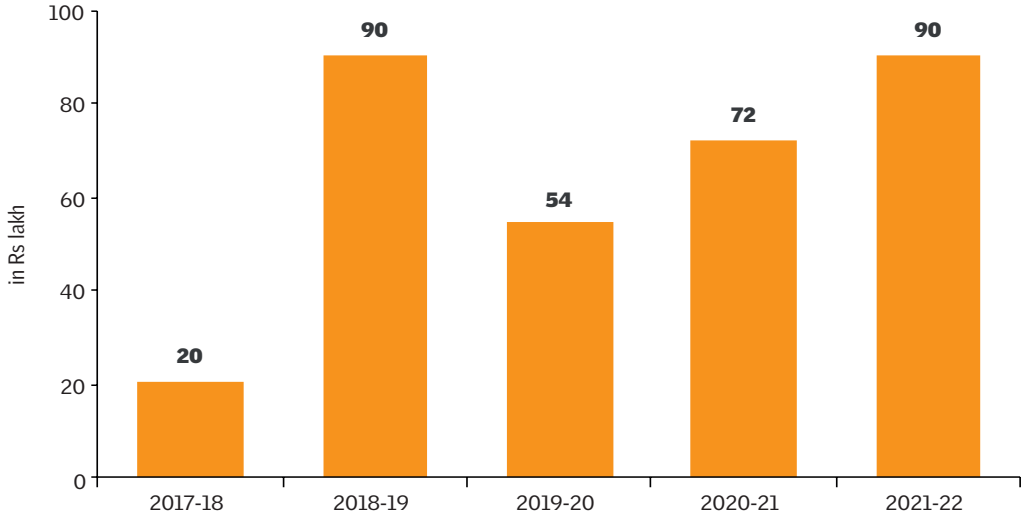
Farmers from more than half of Dantewada's 239 villages are associated with Bhoomgaadi. At the village level, the farmers are grouped into farmers' groups and women's self-help groups (SHGs). The villages are divided into 12 clusters. Some 10–12 villages form a cluster that elects a director to the FPO's board. The 12 directors comprise the governing board of Bhoomgaadi, and are responsible for overseeing the FPO's overall operations. Each village has a community resource person who helps farmers with day-to-day queries, problems and paperwork. Bhoomgaadi's membership has grown from 10 farmers from two to three villages in 2016–17 to 2,727 farmers from 122 villages in 2022.

To understand the status of Bhoomgaadi along with its challenges and learnings, a researcher from the Centre for Science and Environment travelled in 2022 to Dantewada, and had discussions with the concerned stakeholders.

Figure 1: Logo of Bhoomgaadi

Bhoomgaadi is steadily growing, its turnover reaching Rs 90 lakh in 2021–22 from Rs 20 lakh in 2017–18. It expects to see a growth of 25 per cent over 2021–22. The dip in the turnover from 2019 to 2021 partially attributed to the Covid-19 pandemic that hampered both the collection process and sale (see *Graph 1: Turnover of Bhoomgaadi [2017–22]*).

Graph 1: Turnover of Bhoomgaadi (2017–22)



Source: Bhoomgadi Farmers Producer Company Limited

Currently, the collective is redesigning its revenue model to reach the break-even position. It is expanding its procurement and working on third-party certificates to explore export options and end its dependency on grants. The five-year grant period ends in 2023. To keep itself going it is trying to generate funds through various means such as applying for grants and crowd funding. A call seeking donations is currently open on an online fundraising platform. It aims to reach an annual turnover of Rs 2–2.5 crore in the next two years to become completely independent.

Providing market access to farmers

Bhoomgaadi procures produce from 570 farmer groups and women's self-help groups in the district. A group or farmer doesn't necessarily have to be a member to sell its produce to Bhoomgaadi, but preference is given to member groups. It sells its products under the brand name Aadim. The brand name signifies indigenous and original (see *Table 1: Products marketed by Bhoomgaadi).*

Currently, the FPO has more than 50 processed and semi-processed products. It sells seven types of medicinal rice, ten types of aromatic rice, four types of

rice snacks, three types of flour, five types of millets, and eight types of pulses, in addition to forest produce like mahua oil, chironji, tamarind and roselle petal powder, and spices like coriander and niger oilseeds (see *Photograph 1*).

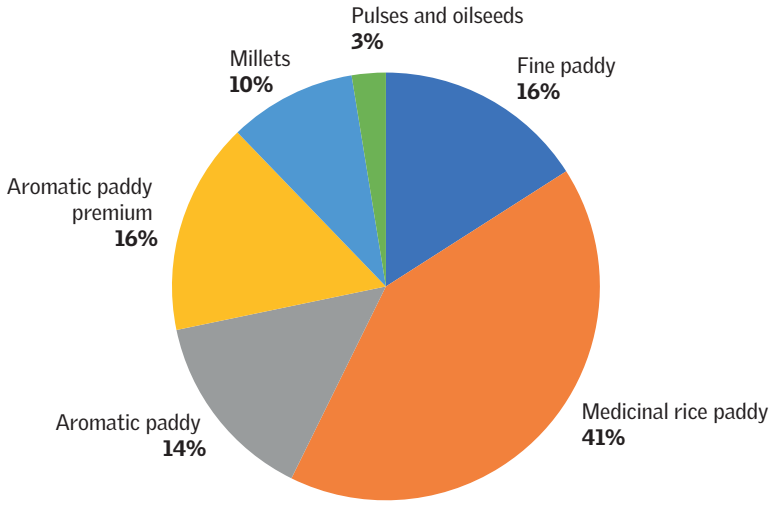
Table 1: Products marketed by Bhoomgaadi

Medicinal rice	Aromatic and/ or aromatic premium rice	Fine rice	Rice snacks/ flour	Millets	Pulses	Oilseeds, forest produce and spices
Kalamali	Basabhog	HMT	Red poha	Little millet	Pigeon pea	Mahua oil
Chudi	Sugandha	Deobhog	Brown poha	Kodo millet	Whole green gram	Niger
Brown rice (desi)	Kamang		White poha	Barnyard millet	Whole black gram	Aged tamarind
Brown rice (fine)	Kadamphul		Popped rice	Finger millet	Split moong	Chironji
Chudi unpolished (red cum brown)	Nimphul		Ragi flour	Sorghum	Split urad	Coriander
Red rice	Lokti machi		Low glycemic index rice flour		Red cowpea	Dry mango powder
Black rice	Javaphul		Horse-gram flour		Whole broad beans	Coriander powder
Hardi Ghati	Kala jeera				Horse gram	Dried roselle petal powder
	Babaibuta					
	Dubraj					

Photograph 1: Examples of Aadim products—Kalamali rice and red-cum-brown rice

The volume of procurement from farmers was 1,914 quintal in 2020–21—an increase of 28 per cent from 1,495 quintal in 2016–17. The range of crops is promoted keeping in mind both sustainable farming and market demand. Over the years there has been an increase in the collection of other commodities such as pulses and oilseeds, but crops such as medicinal red rice, aromatic rice and millets are procured in significant amounts (see *Graph 2: Breakup of procurement [2020–21]*).

Graph 2: Breakup of procurement (2020–21)



Source: Bhoomgadi Farmers Producer Company Limited

As the focus on millets is increasing across states in India, the Chhattisgarh government launched in 2021 the initiative Millets Mission to make the state a hub for these ancient crops. Bhoomgaadi has joined hands with the state government to revive millets and bring the change to the ground.

There is only one Krishi Upaj Mandi (regulated market) in Dantewada, so if individual farmers grew surplus, there was a lack of channels to sell their harvest. Through collectivization—in the form of Bhoomgaadi—farmers have this channel. To collect the produce, procurement centres are set up at the cluster level (four to five gram panchayat makes one cluster) to aggregate the harvest from nearby villages, reducing the cost of transportation and labour for both parties. Farmers often use a common vehicle (tractor) to reach the nearest procurement centre, saving them time, money and effort.

There are currently 23 procurement centres for produce from Bhoomgaadi's associate villages. From procurement centres, Bhoomgaadi transports the produce to their central processing unit, where produce is graded, sorted and destoned. After processing, the produce is packed in deoxygenated bags.

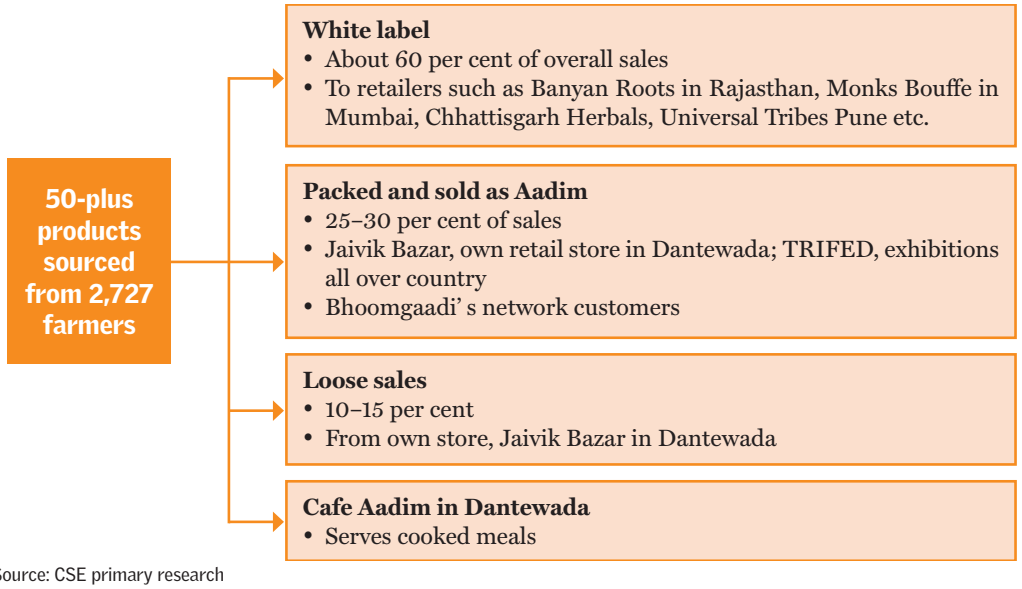
Improving farmer incomes

Depending on the variety of rice and quality of other commodities, Bhoomgaadi procures from farmers at around 20–25 per cent better rate than the minimum support price (MSP). Farmers are generally paid 90 per cent of the money through a direct bank transfer within a few days of procurement. Ten per cent is kept as security until quality checks are carried out—this can take as long as three months. As the procurement is done in phases, farmers who fall in the last phases get the whole amount in one go. The procurement rates are decided by the board of directors in consultation with the other farmers associated with Bhoomgaadi. The farmers are informed about the prevailing MSP in other Indian states and the procurement rates of some leading firms involved in organic farming businesses, and relevant rates are decided according to that data.

Bhoomgaadi accrues profits of roughly 10–20 per cent on the maximum retail price (MRP). This can also reach 20–30 per cent, depending upon the commodity, sale model (loose sale, white label or own branding) and actual quantity realized after milling and processing, with some exceptions. For instance, the price of the Dubraj variety of rice is Rs 75 per kg in bulk sale and the collective gets a margin of only 3–4 per cent. The farmers' share, however, is significant at 58 per cent.

Under its own branding, the share of the collective increases a bit. For example, Javaphul rice is sold at Rs 90 per kg, where the FPO gets 13 per cent of the selling price. In this case, the farmers' share is 54 per cent (see *Figure 2: Market access for farmers' produce*).

Figure 2: Market access for farmers' produce



Source: CSE primary research

To create a market for its products, Bhoomgaadi employs a dual approach. It pitches its unique varieties such as aromatic Javaphul, Lokti Machi, medicinal Sathka (red rice) and Kalamali to create new demand, and sells popular rice varieties to cater to existing demand. So far it has predominantly been business-to-business through companies like Monks Bouffe, an organic food and farming brand based in Mumbai; Banyan Roots, the leading organic food store in Udaipur; Universal Tribes, a tribal handicrafts and organic food store based in Pune; and through government agencies like Tribal Cooperative Marketing Development Federation of India (TRIFED) and Chhattisgarh Herbals.

Under the white label, produce is supplied in bulk to purchasers, who resell the products with their own branding and MRP as they see appropriate. While the farmer share remains largely unaffected, the mode of sale has an effect on the collective's margins. It gets better margins when sold under its own brand name Aadim.

Yet, due to its remoteness and logistics, it is unable to take advantage of digital platforms. It sells under its own brand through exhibits, its own network and TRIFED. Unlike retailers that charge exorbitant commissions—40–45 per cent of the MRP—citing lower demand for organic food, TRIFED charges only 20 per cent commission, making it a feasible choice for collectives, particularly those operating in difficult circumstances. Since the Covid-19 pandemic, however, the volume of orders from TRIFED has fallen drastically.

To overcome adversity, Bhoomgaadi set up in 2021 its store Jaivik Bazar in Dantewada under its business-to-consumer (B2C) plans. The collective also runs Cafe Aadim in the district, which serves traditional Chhattisgarhi food and other cuisines. The idea behind the café is to increase awareness and reintroduce the various indigenous rice varieties and food crops like millets that have fallen out of favour over time. The cuisine is created using solely organic ingredients (see *Photographs 2 and 3*).

Promoting Bhoomgaadi

Aside from selling through traditional market channels, Bhoomgaadi never passes up a chance to increase its products' visibility and distinctiveness. It participates in fairs and exhibitions all over the country, such as TRIFED Aadimohstav, New Delhi; Chhattisgarh Mahostav, Raipur; Biofach India Organic Expo, Noida, Uttar Pradesh; and Bio-Diversity Festival on Millets, Koraput, Odisha.

Photograph 2: Jaivik Bazar retail outlet in Dantewada

Photograph 3: Cafe Aadim in Dantewada

Facebook, Instagram and YouTube are used heavily used to promote organic farming and improved agricultural practices and to spread the word about Bhoomgaadi and the challenging environment in which it operates. Their social media platforms not only promote customer involvement but also strengthen their trust in Bhoomgaadi's endeavours and products. As a result of people's trust in the collective, in its first attempt at crowdfunding in 2021–22 Bhoomgaadi raised over Rs 33 lakh, and it has already raised around Rs 17 lakh in the present call for 2022–23 within a few days of the plea.

"The collective has been successful in raising the incomes of the farmers who can't connect to government procurement, and as they go up the value chain, it should increase more."

—Shashank Guwalani, Lead—Operations, Bhoomgaadi

"We are producing pulses, millets and vegetables not only for personal consumption but for the market as well. Just a while ago we mostly grew rice."

—Chandrasekhar Singh, farmer, Balud village

"The idea is to not just to improve the economic profiles of farmers in Dantewada by creating market linkages but also to improve their nutrition and the surroundings they live in."

—Hritgandha Deshmukh, Lead—Monitoring and Evaluation, Bhoomgaadi

Helping farmers grow organic

A membership fee of Rs 1,100 is charged to farmers to register with the FPO. To prevent the fee from being a deterrent for farmers, farmers can opt instead to give Bhoomgadi their produce for the same amount. Like most tribal communities around the world, the tribals of Dantewada rely on natural resources as their main source of income and livelihood. Agricultural practices have historically been subsistent, and are predominantly rain-fed, with limited irrigation facilities. Over 98 per cent of the total cultivable land is single cropped.

Thus, the collective continues to invest with full force in capacity-building of farmers. Bhoomgaadi trains and encourages its farmers to use better agricultural practices such as Systemic Rice Intensification (SRI), line spacing and line sowing. These practices improve yield, help in weed management, reduce the chances of disease and make the input application more efficient. Experts such as Subhash Palekar and V.S. Arunachalam are regularly brought to the field for capacity-building of farmers. Selected "champion" farmers are also sent to other states to learn new techniques in chemical-free farming; some recently went to Bhai Kaka Krishi Kendra in Gujarat to learn various organic techniques from Dr Sarvadaman Patel.

Farmers are trained in making inputs like kachra khad and hari khad with plants like charota, i.e. *Cassia tora*, an edible plant that also keeps soil moist; fish tonic; and concoctions like raakh paani, jeevamrita and beejamrita. Neem dava and haandi dava are used to control pest attacks. Handi dava is made using the leaves of five trees that goats don't eat (see *Photograph 4*).

Photograph 4: Training camp organized for capacity-building of farmers

Bhoomgaadi encourages and supports farmers to produce vegetables and its production has increased. Farmers grow more vegetables, including onions, beans, tomato and okra. Bhoomgaadi, however, is still to start procuring vegetables from farmers as most of the production is consumed at the household level. It plans to look into the possibility of marketing when production levels are high enough.

To strengthen the credibility of its products, the collective has been using the peer-based Participatory Guarantee Scheme (PGS) for the purpose of certification. It is now seeking to register the villages under it with the Large Area Certification (LAC) scheme. LAC requirements are simple, and the area can be certified almost immediately. Under LAC, each village in the area is considered as one cluster/group. They have also begun the process for the third-party certificate to reach out to international markets.

The collective also encourages seed production and preservation in order to restore dwindling crop diversity and boost availability of indigenous seeds. Farmers get paid more for the seeds since seed production requires more labour and time to keep them free of contamination. For example, if a variety of rice fetches Rs 2,500 per quintal, seeds for the same variety are procured at Rs 3,300 per quintal. Selected farmers grow varieties of traditional and aromatic rice that they regularly give to the collective, which it distributes among farmers during sowing seasons. It has circulated over 200 quintal of desi seeds among the farmers so far (see *Photographs 5 and 6*).

Photographs 5 and 6: Exhibition to promote indigenous seed varieties in Dantewada

Along with the capacity-building, training and handholding support—which collectives are expected to do—Bhoomgaadi promotes community-building to keep tribal communities abreast of the world around them and enable them to take informed decisions. As part of this effort, the collective has built a community library for farmers and conducts meetings to educate them about nutrition and a diverse diet. Festivals and cultural days are celebrated together to instil a sense of belonging.

	**"We are just back from training at the Bhai Kaka Krishi Kendra, Gujarat. Some of us farmers go and get the training and then impart it to others. Initially, my father was sceptical about chemical-free farming, and he allowed me to try it only on a small patch of land. I used the right approach and my yield doubled in just a year. After that, even my elder brother started chemical-free farming."** —Suresh Nag, farmer and member of the district team of Bhoomgaadi
	**"You need chemical pesticides only if you use chemical fertilizers. We don't use either."** — Rameshwar Yadav, farmer, Balud village
	**"Zameen khush hogi toh kisan sukhi hoga [The soil's happiness—health—brings happiness to farmers]. The presence of a wooden plough in the field is an indicator of good soil quality."** —Badari Devi, farmer, Nangul village
	**"Yield stagnates over time as soil quality degrades with chemical use. This hampers crop volume and makes lives more difficult for farmers. Learning about organic manures, organic remedies such as handi dava and cultivation techniques like SRI (systematic rice intensification) vidhi and mixed farming have enriched our diets, our soil and our incomes."** —Bhagat Singh Thakur, farmer, Balud village

Learnings

The biggest challenge for Bhoomgaadi is to overcome the limitations of market access due to the remoteness of Dantewada. Another challenge is limited production due to reasons such as low irrigation coverage and subsistence farming practices, which have begun to change. The third key challenge is to reduce dependence on external grants.

Despite these challenges, Bhoomgaadi has been successful in providing market access while promoting organic farming. Because of the efforts of the collective and its farmers, Dantewada is the only district in Chhattisgarh where no sale and promotion of chemical inputs is authorized. Interventions made by the collective have significantly decreased the cost of cultivation by employing organic farming methods. In addition to these obvious benefits, there are several co-benefits to health and environment.

2. Sahaja Aharam Producer Company Limited

- Sahaja Aharam Producer Company Limited, formed in 2014, is a federation of 19 FPOs. It helps over 9,000 farmers in 11 districts in two states—Andhra Pradesh and Telangana—grow food organically at low cost.
- It sells over 200 products, including fruits and vegetables, to 4,000 consumers directly through four retail stores—Sahaja Aharam Organic Stores in two states—and to 110 bulk buyers across the country under the brand Sahaja Aharam.
- It has shown how market-based crop planning can ensure better returns and de-risk farmers through crop diversification and has helped reduce the cost of cultivation and effectively leverage technology.
- Its challenges include limited working capital, which prevents steep scaling up despite the possibilities.

Sahaja Aharam Producer Company Limited (Sahaja) is a federation of farmer producer organizations (FPOs). Groups of FPOs come together to form a federation, mostly to bring resource augmentation and efficiency to systems.

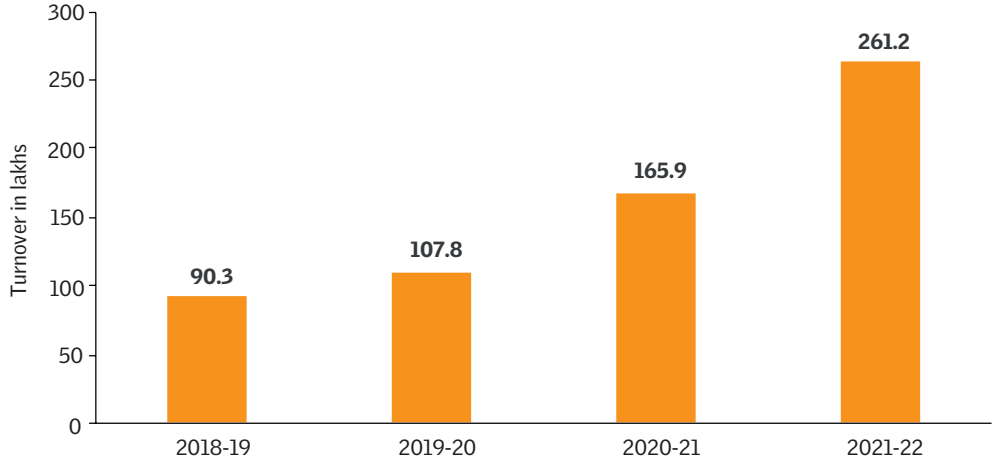
Sahaja was formed by converting earlier cooperatives into FPOs. It has created a food system that prioritizes small and marginal farmers and connects them directly with urban consumers, providing them with nutritious food while ensuring ecological benefits to the environment. Out of the 19 FPOs who are part of Sahaja, 16 are shareholders spread across two states, Andhra Pradesh and Telangana. It primarily procures produce from these FPOs through 9,000 certified farmers cultivating 1,500 acres in 180 villages of 11 districts.

Sahaja is supported by the Centre for Sustainable Agriculture (CSA), a not-for-profit organization working with farmers since 2004 to promote organic farming. But once farmers started growing food organically, market access offering a remunerative price became the next hurdle. Cognizant of this, CSA began incubating FPOs, which led to a federation of FPOs—Sahaja Aharam Producer Company Limited. It continues to assist and advise Sahaja on several aspects to perform its functions. Additionally, CSA is also a Regional Council for helping farmers with Participatory Guarantee System of organic certification in India.

To understand the status, challenges, and learnings, a researcher from the Centre for Science and Environment travelled in 2022 to the Hyderabad headquarters of Sahaja and CSA and visited FPOs in Jangaon, Siddipet and Yadadri Bhuvanagiri districts in Telangana and Andhra Pradesh for discussion with the relevant stakeholders.

To become a shareholder member of Sahaja, a registered farmer producer company or a cooperative operating in the space of organic and natural farming has to pay Rs 10,000. Sahaja has grown consistently over the last four years as it has been able to increase the supply of organic produce while also creating demand for it. It was able to break even in 2020–21. Its turnover almost tripled from 2018–19 to 2021–22 (see *Graph 3: Sahaja's turnover [2018–19 to 2021–22]*).

Graph 3: Sahaja's turnover (2018–19 to 2021–22)

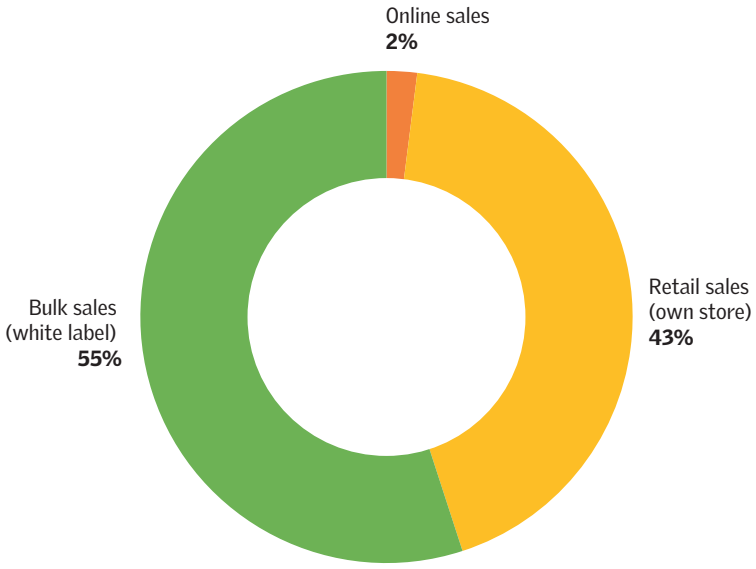


Source: Sahaja Aharam Producer Company Limited

Sahaja's cumulative sales data in 2017–21 indicates that 55 per cent of its total sales was bulk sales sold as white label, and 43 per cent was sold through its own retail Sahaja Aharam Organic Stores under its brand name Sahaja Aharam.

Figure 3: Logo of Sahaja Aharam Producer Company Limited

Graph 4: Sahaja's bulk and retail sales breakup (2017–18 to 2020–21)



Source: Sahaja Aharam Producer Company Limited

Only a small proportion of sales was through online platforms (see *Graph 4: Sahaja's bulk and retail sales breakup [2017–18 to 2020–21]*).

An additional 10,000 acre (4,046.8 hectare) of land is under conversion. Sahaja is continuously adding land under organic cultivation, and is expected to add 40,000 more certified farmers in the next five years and 20–30 more FPOs.

Based on the credit limit decided by banks, Sahaja has so far been able to raise debt worth around Rs 5 crore from various sources such as Nabkisan, Ananya Finance for Inclusive Growth Private Limited, and HDFC Bank, along with a small gap funding from Samunnati Financial Intermediation and Services Private Limited.

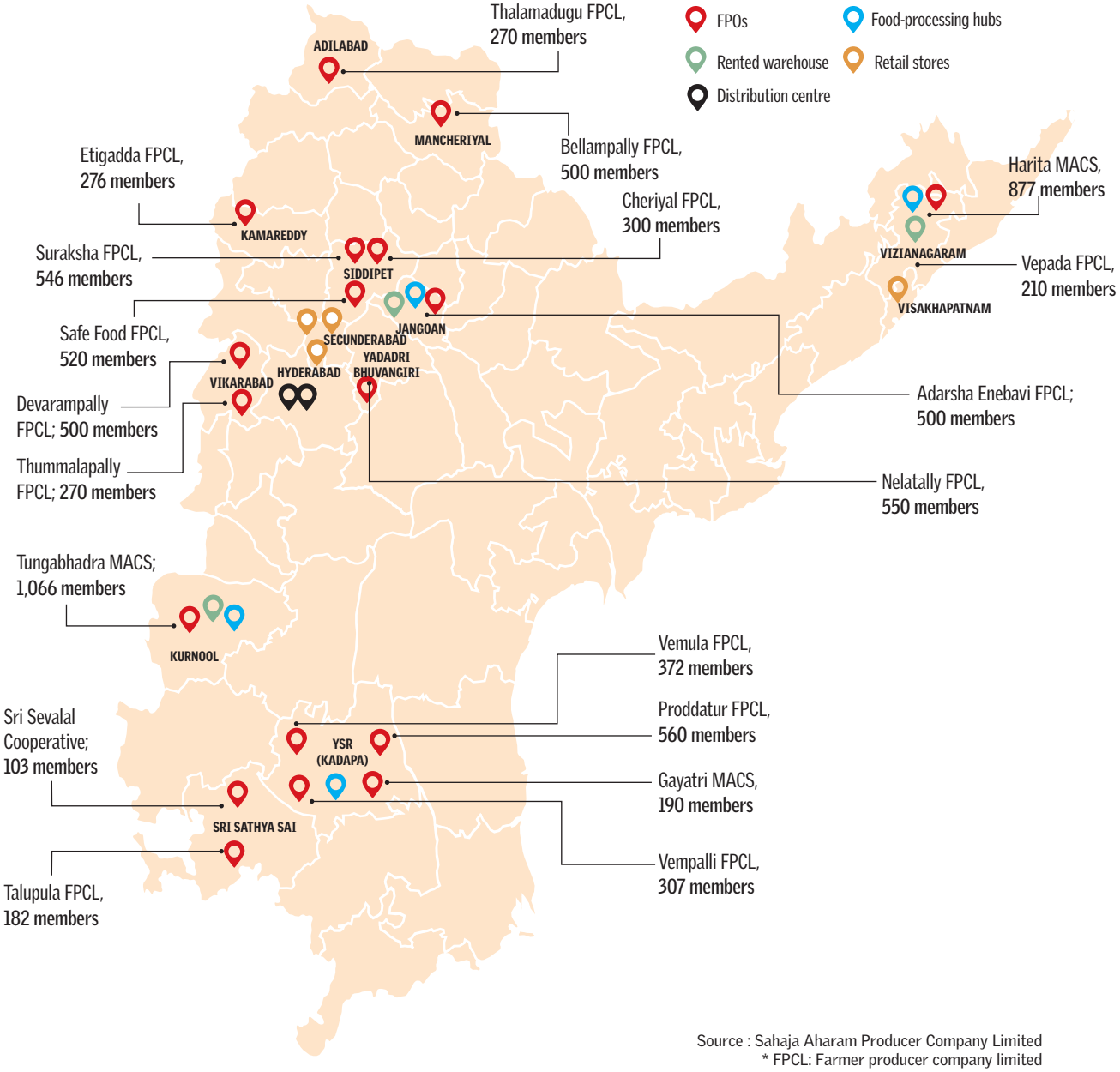
"FPOs certainly help, more so if federated as they have the potential to augment resources, help more farmers grow food organically, leverage technology, bring efficiency in systems and help farmers earn more through shorter supply chains by bringing producer and consumer together.

—G.V. Ramanjaneyulu, Board of Directors, Sahaja

Providing market access to farmers

Sahaja procures produce from 16 FPOs. It uses four food-processing hubs to process the produce and provides market linkages through its four retail stores and bulk sales to 110 other buyers (see *Map 2: Sahaja—location of FPOs, food-processing hubs, rented warehouses and retail outlets*).

Map 2: Sahaja—location of FPOs, food-processing hubs, rented warehouses and retail outlets



Source : Sahaja Aharam Producer Company Limited
* FPCL: Farmer producer company limited

Photograph 7: Examples of Sahaja's products (left to right)—rice, groundnut oil and ragi flaxseed laddu

Sahaja offers about 200 products, including about 150 staples, processed food, healthcare products, beauty and personal-care products and about 50 varieties of fruits and vegetables (see *Photograph 7*).

The integration of value-added processed foods has been done consciously to provide more choice to the customer and help complete the transition to organic, as well as earn better revenue. Some products—mostly beauty-care products—are procured from others such as women self-help groups and enterprises supported by Sahaja or CSA. Sahaja also provides free-range eggs to promote backyard poultry farming in the FPOs.

The processing also helps generate livelihood opportunities for rural people across the value chain, starting from the FPOs. Even at the FPO level, for the secondary processing (pulses and oil mills), packaging and branding, FPO members are employed (see *Table 2: Product range sold by Sahaja*).

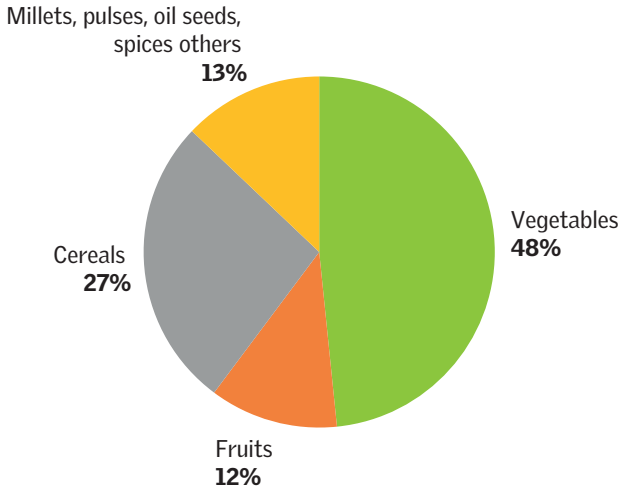
Table 2: Product range sold by Sahaja

Category	No. of products	Examples of products
Oils	6	Safflower oil, sesame oil, sunflower oil, groundnut oil, black mustard oil, coconut oil
Pulses	12	Kabuli chana, urad dal, chana dal, moong dal, tur dal, rajma Kashmiri, horse gram
Cereals	7	Brown rice, white rice, black rice, semi-polished rice, whole wheat, popcorn kernels
Millets	7	Pearl millet, foxtail millet, kodo millet, little millet, white jowar, ragi whole
Oilseeds	3	Flaxseed, soya bean, groundnut
Sweeteners	4	Honey, sugar, jaggery blocks, jaggery powder
Flours	7	Bengal gram flour, rice flour, ragi flour, wheat flour, wheat rava, yellow jowar rava
Eggs	2	Free-range eggs, brown eggs

Category	No. of products	Examples of products
Spices and condiments	17	Cardamom, cinnamon, fenugreek, rock salt, tamarind, khus-khus, kokum, mint powder
Dry fruits	4	Cashew, almonds, green pistachio, small raisins
Processed food	43	Groundnut laddu, jowar murukulu, ginger pickle, drumstick pickle, spice powder, rice crackers, ragi flaxseed laddu, flaxseed malt, ragi cookies, ragi vermicelli, rice fryums
Fruits and vegetables	50	Banana, amla, guava, jackfruit, mango, musk melon, onion, potato, tomato, ridge gourd, cabbage
Healthcare	21	Dry ginger powder, herbal tooth powder, nirgundi tailam, sugandhapala churnam, trikatu churnam, chia, mix fruit muesli, ashwagandha churnam, moringa olifera
Beauty and personal	16	Bhringraj oil, citronella oil, eucalyptus oil, skin oil, herbal bath powder, herbal shampoo powder, jasmine oil, lemon-grass oil, soundarya soaps, dental oil, ear oil, toothpowder
Others	3	Incense cones, incense sticks, mosquito agarbatti

Source: Sahaja Aharam Organic Farmers and Foods website https://sahajaaharam.com/#quickshop

Graph 5: Sahaja's crop-wise procurement share (2020–21)



Source: Sahaja Aharam Producer Company Limited

During 2021–22, Sahaja procured 39.8 tonne of organic produce from its network—48 per cent was vegetables, 12 per cent fruits, 27 per cent cereals, 13 per cent millets, pulses, oilseeds, spices and other foods (see *Graph 5: Sahaja's crop wise procurement share [2020–21]).*

Creating value

Sahaja aggregates all grains, fruits and vegetables from farmers at the FPO

collection centres in the respective FPOs. Fruits and vegetables are cleaned, sorted and graded at the FPO level, and being perishable items, they are transported to the distribution centre daily, from where they are sent to retail outlets, mobile vans and for online sales. A-grade fruit and vegetables are typically sold easily; Sahaja has recently started drying B- and C-grade fruits and vegetables using environmentally friendly solar conduction dryers. One tonne of mango was dried and sold in 2022.

Grains, such as paddy and red gram—which are procured in large volumes—are stored in rented warehouses at Kurnool and Vijayanagar in Andhra Pradesh and Jangaon in Telangana. The warehouses are managed by Agricultural Produce Market Committees (APMCs). Sahaja signs an agreement with the APMC that no pesticides will be used at these warehouses. The grains are sold in bulk to the buyers directly (see *Photograph 8*). At times, based on demand, paddy is processed into rice at a few certified processing (organic) units—which are separate from food-processing hubs—located in Nizamabad and Kurnool in Telangana and YSR Kadapa in Andhra Pradesh.

Photograph 8: Rented warehouse that stores paddy in Lingalaghanpur, Jangaon

Products that require more processing and packaging, such as certain cereals, oilseeds and pulses, are processed by FPO members using mills and food-processing hubs located in Vijayanagaram and Kurnool in Andhra Pradesh and Jangaon in Telangana. A food-processing hub in Doril, Maharashtra, is used primarily to process seeds. Each FPO is connected, based on logistical factors—including distance—to one of the four hubs.

Photographs 9 a and b: Sahaja distribution centre, Telangana

The distribution centres in Telengana receive all the processed products from the food-processing hubs, women self- help groups and sometimes from entrepreneurs. From here it goes to the four retail stores in Secunderabad and Hyderabad in Telangana and Visakhapatnam in Andhra Pradesh. Through these stores Sahaja is able to connect with more than 4,000 customers directly (see *Photographs 9a and b*).

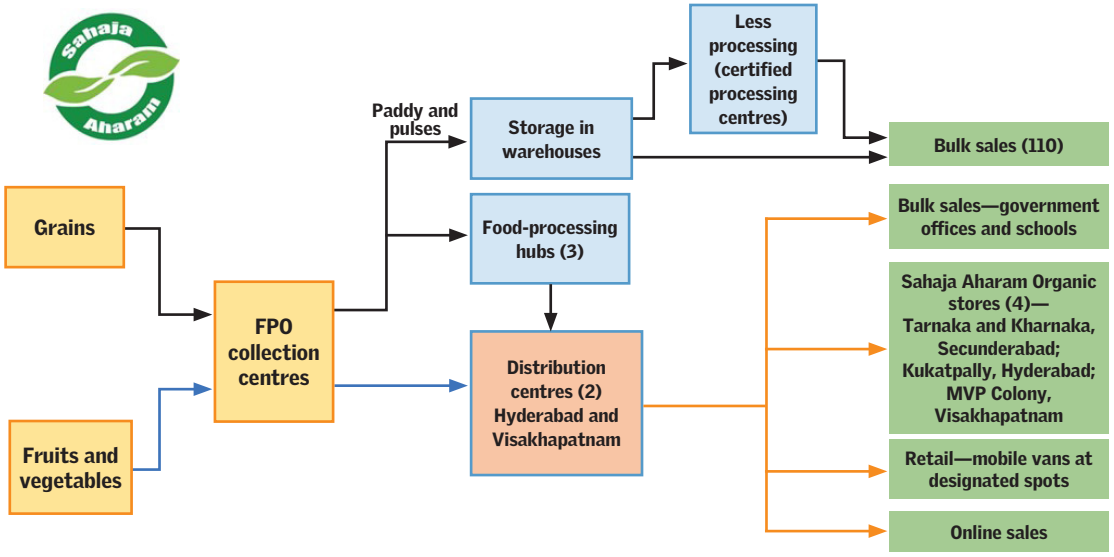
Sahaja's mobile van takes products from the distribution centre and goes to different parts of Hyderabad city at scheduled times. It also accepts online orders for pickup from stores in Hyderabad and Secunderabad (see *Photographs 10 and 11*).

Photograph 10: Sahaja retail store in Hyderabad

Photograph 11: Sahaja mobile van

For bulk sales, Sahaja sells unlabelled 25 kg packs to buyers. Bulk buyers put their own branding on the products before selling them in the market. Sahaja sells in bulk to 110 big buyers, including Deccan Mudhra Agri Pvt. Ltd, Urvii Khadyam Pvt. Ltd, Shathabdhi Organics, Safe Harvest Pvt. Ltd, Shreesha Organics, Tula Green, Arigato Nature, Cryopses Pvt. Ltd, Back to Roots, Greentatwa, Paanal

Figure 4: Sahaja's value chain



Source: Sahaja Aharam Producer Company Limited

Farms, Urban Kisaan, Organic Makhan and Freshbox (see *Figure 4: Sahaja's value chain*).

Assuring quality

Sahaja emphasizes on quality and encourages all FPO members to get certified either under the Participatory Guarantee System (PGS) or third-party certification through the Internal Control System (ICS). Around 9,000 farmers are certified organic farmers under the Participatory Guarantee System (PGS), while 500 farmers are certified under the Internal Control System (ICS). Sahaja does a random sample test (about 1 per cent of total samples) of the total procurement for chemical pesticides and genetically modified crop residues. It shares the results with customers to build trust and accountability. Sahaja also maintains traceability—each packet carries a QR code that gives information about the group of farmers which has produced it and its batch number gives detail about where the product was processed.

Improving farmer incomes

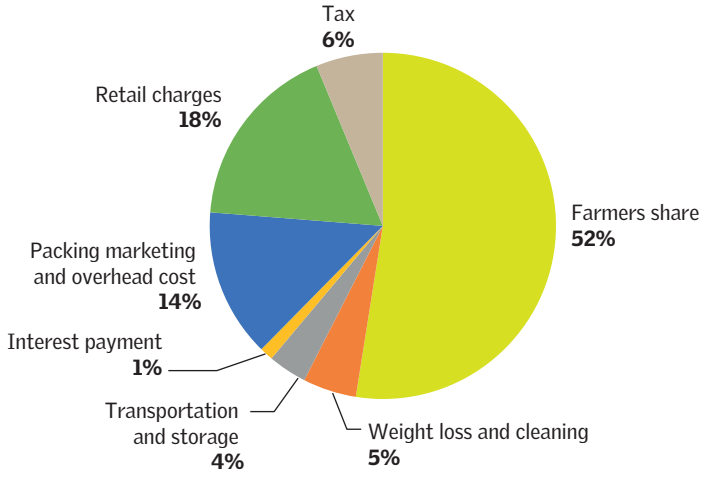
Sahaja has been able to share a significant proportion of the selling price to the farmers. This is possible because of Sahaja's cost-sharing model. For example, it pays farmers according to the following criteria:

- 50 per cent above the farmer's cost of cultivation;
- 10–15 per cent above the local market price;
- 50 per cent of the consumer price (maximum retail price)

Farmers are paid whichever is highest. On cereals, millets, pulses and oilseeds, the prices offered by Sahaja are 10 per cent higher than market rates, but if the quality is good the figure can go up to 15 per cent. The same principle is followed for vegetables.

In the case of rice, for example, about 52 per cent of the selling price of Rs 80 typically goes back to the farmer. Out of the remaining half, about 18 per cent is the operational expenses of Sahaja. The remaining 30 per cent is spent on transportation and storage, packaging and marketing, taxes, weight loss and cleaning and interest payments (see *Graph 6: Farmer's share of selling price of rice [at Rs 80]*).

Graph 6: Farmer's share of selling price of rice (at Rs 80)



Source: Sahaja Aharam Producer Company Limited

Sahaja follows primarily two models for payment. First, in the case of paddy, cereals, oilseeds and pulses, farmers are paid 20 per cent in advance and the remaining 80 per cent is paid after procurement. Another option is that farmers are paid 50 per cent during procurement and the rest after a month. Usually the first model is followed, but it depends on the cash flow. Second, in the case of vegetables, based on a long-term understanding, farmers are paid every 15 days. The payment gets delayed only if cash flow is low. As Sahaja pays higher prices to farmers, no dividend is paid as they don't want to keep farmers waiting for an entire year.

While ensuring farmers are paid better, Sahaja tries to keep the prices of its products affordable for consumers; depending on the food type and quality, it keeps them within a bracket of 20–40 per cent over conventionally grown produce. It offers new consumer groups a discount of 10 per cent on bulk orders.

Sahaja leverages social media platforms Facebook and Instagram for marketing its product and creating awareness. It organizes organic forums and fairs for customers, including children.

Helping FPOs grow organic

Like any other business, Sahaja also plans its production meticulously with its member FPOs for each crop seasons. It is based on the current and previous year's market trend, rate and volume of sales. Based on projections, Sahaja prepares a crop production plan with the FPOs and signs an agreement with the FPOs during this phase. As per the agreement, FPOs have to supply the agreed quantity of the respective crops to Sahaja. Subsequently, each FPO shares its progress such as sowing and area sown with Sahaja. These specifications are fed in into the enterprise resource planning system (ERP), based on which Sahaja makes a production estimate, arranges resources and plans logistics. This planning helps Sahaja address market demand and fluctuations.

Based on the market trend of a certain crop or its varieties, Sahaja also motivates its FPO members to try to grow them as a trial on new plots. Farmers do not hesitate to try new crops as they know the risk is minimal as Sahaja will provide market access for these as well.

Seed being a critical element in organic farming, Sahaja helps identify appropriate seeds that suit the local conditions, such as water requirements, pest resistance and yield. It motivates farmers to use their own traditional seeds and educates them about the kind of seed, which has better marketability due customer preference.

Farmers are trained on organic weed, pest and disease management practices and making organic and bio-based input preparations themselves. Regular capacity-building support from Sahaja has helped farmers attain yields comparable with conventional farming practices (see *Photograph 12*).

Farmers and FPO representatives are encouraged to go on exposure visits to other FPOs, villages, and institutions for motivation, believing that seeing how their peers are doing organic farming will help them learn from each other. Sahaja encourages FPOs to help farmers leverage several government schemes such as related to drip irrigation, sprinklers, pipes, agriculture tools and seeds (see *Photograph 13*).

Sahaja with the help of CSA has introduced the Pestoscope app and Kisan Mitra helpline for pest and disease management as well as other crop-related issues. It has set up pest and disease surveillance at the village level, with a few farmers using

Photograph 12: Krishan, a farmer from Jeedikal, displays bio-input ghanjeevaamritam in Jangaon district, Telangana

Photograph 13: Kuntoni Shyamala, Narsampally village, Mulung district, showing drip irrigation system

various traps. If there is any pest or disease attack on the farms, other farmers are given timely advice for control and treatment. Rainfall is monitored by means of rain gauges in the villages, and other weather parameters collected from the India Meteorological Department and state weather bureaus are shared with the farmers. Sahaja facilitates training of trainers twice a year to keep them updated on the support—pest surveillance, disease management and rainfall monitoring—and on organic farming.

Sahaja facilitates capacity-building of FPO members on microenterprises. Some become "bio-entrepreneurs", produce bio-fertilizers at the village level, and sell them to the FPO members. Others take up livestock rearing (goat rearing, apiculture and backyard poultry) to improve their livelihoods. Sahaja also provides

"Our production planning is the key to our business. It helps us plan our production effectively while keeping the supply chain shorter."

—Prasanna T.P., CEO, Sahaja

"I was using the most chemicals in my village. Now I don't use any chemicals but my yield is still at par."

—Babumiya Mohammed, farmer and director of Sahaja

"Sahaja helped me learn new techniques such as drip irrigation and poly house."

—Kuntoni Shyamala, farmer, Narsampally village. She has practised organic farming on 1.5 acre of land since 2017, growing vegetables, maize and paddy.



Photographs 14 a, b and c: Fostering livelihoods and microenterprises (left to right)—value addition in fruits and vegetables using a solar conduction dryer and bio-input preparation unit

livelihood to women's self-help groups that are skilled in making ready-to-eat food such as millet laddus, cookies, pickles, jams and other edible products. It keeps a close check on the quality of these products, starting from the sourcing of the raw materials to random checks on the process through which they are being produced (see *Photographs 14a, b and c*).

Learnings

Sahaja's challenges include limited working capital which prevents steep scaling up despite the possibilities. With more capital, it can invest in procurement, storage and inventory.

Sahaja, however, comes across as a successful model that has been effective in its limited geography in providing market access to a large number of farmers through its retail sales under its own brand as well as reached out to distant areas through bulk white-label sales. Importantly, fruits and vegetables, which are otherwise difficult to procure and sell, are a significant part of its products.

Through the federation approach, Sahaja is able to scale up and gain efficiency. It has shown how market-based crop planning can ensure better returns and de-risk farmers through crop diversification. Sahaja has helped move farmers up the value chain, and directly connected farmers and consumers while effectively leveraging technology. It provides an assured market, better incomes and reduced cost of cultivation, and offers chemical-free food to consumers.

SECTION B

FOOD RETAIL CORPORATIONS

3. Sresta Bioproducts Limited (24 Mantra)

- Sresta Bioproducts Limited, Hyderabad, is one of India's largest organic food retailers, aggregating produce from 40,000 certified organic farmers across 16 states.
- It sells over 200 organic food products under its brand 24 Mantra in more than 550 cities across India through over 7,500 outlets.
- It also sells in 33 countries across the world, through over 1,900 outlets.
- It has leveraged online selling effectively—it has over 30 per cent share of online sales for organic food—as well as its wide network of processing facilities.
- By utilizing all marketing channels and a network of processing facilities, it has demonstrated how an assured market helps farmers earn more.

Sresta, with its headquarters in Hyderabad, Telangana, was established in 2004 by Rajshekhar Reddy Seelam and two additional promoters, Renuka Seelam and Bala Subramanium Narayanan. It is one among India's top suppliers of organic products. Sresta provides market access to 40,000 farmers growing organic food on 225,000 acre from 16 states in India.

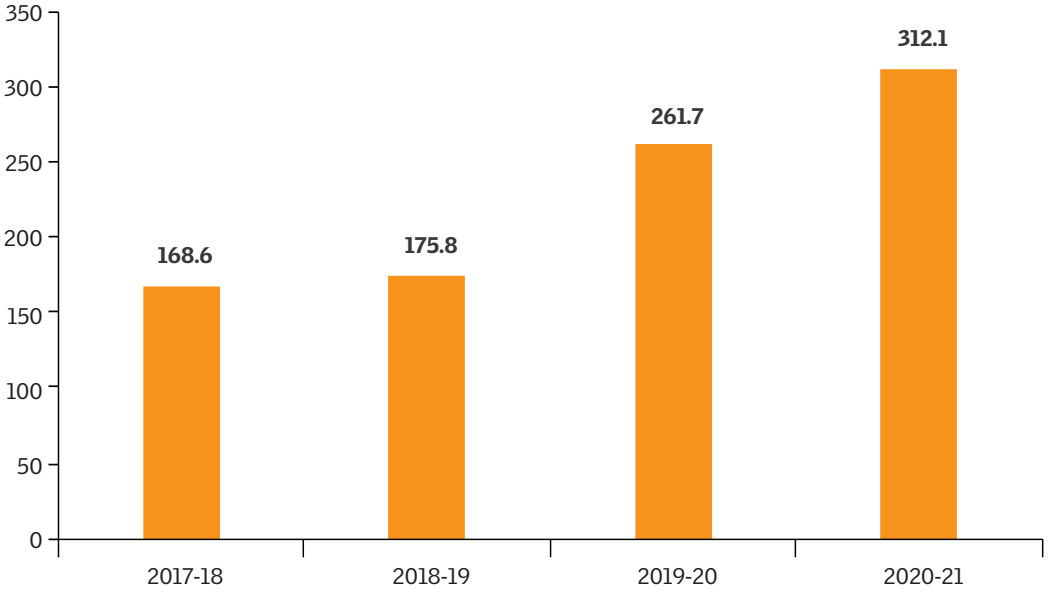
In the earlier days the founders travelled across India to learn about organic agriculture, and in the process they became associated with many organizations. Through one of them, Sresta identified Nawalgarh, Rajasthan, as suitable for their first project site. It partnered with a local non-government organization (NGO) that had the community's trust. The NGO was made responsible for field support and mobilization, while Sresta delivered technical, supervisory and certification support. Soon it started procurement and then overtook the entire project and appointed its own staff.

Sresta is primarily a business-to-consumer (B2C) company. It adds value to organic raw materials procured from farmers, and converts them into a variety of food products suitable for retail. It sells about 200 products under its brand 24 Mantra Organic, meeting all certification requirements for the domestic and international markets (see *Figure 5: Logo of 24 Mantra*).

Figure 5: Logo of 24 Mantra

Sresta is a leading market player selling products in India and other 33 countries. Between 2017–18 and 2020–21, its revenue from Rs 168.6 crore to Rs 312.1 crore—an increase of 85 per cent—thanks to its global sales network. Of the total sales in 2021, over half (52.1 per cent) came from the domestic market and the rest from international markets in 33 countries (see *Graph 7: Sresta's turnover*).

Graph 7: Sresta's turnover (Rs crore)



Source: Sresta's financial statements

To understand Sresta's status, challenges and learnings, a researcher from the Centre for Science and Environment travelled to Nawalgarh and Jhunjhunu in Rajasthan and Mandsaur in Madhya Pradesh in 2022, and had discussions with all the concerned stakeholders. Inputs were also provided by farmers from Sikar, Rajasthan.*

Proving market access to farmers

Sresta's diversified product portfolio includes food items for breakfast, lunch and dinner, as well as refreshments. These can be divided into basic staples, specialty staples, spices and condiments, processed food, beverages, and value-added products (see *Table 3: Sresta product categories and examples*).

* Research inputs: Mohini Thakur

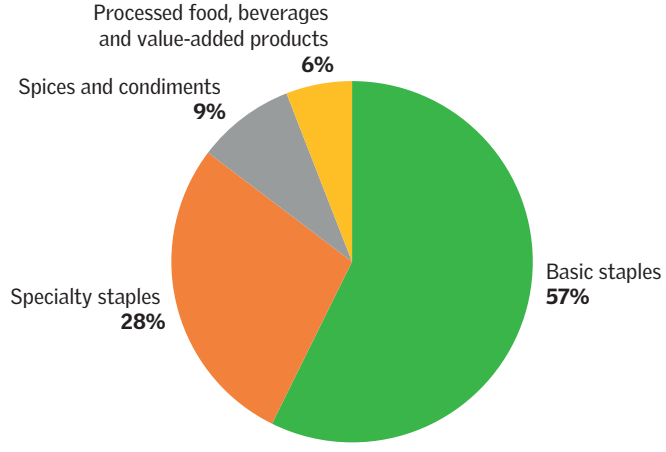
Table 3: Sresta product categories and examples

Product category	Examples
Basic staples	Whole-wheat atta, Sonamasuri white rice, tur dal, green moong whole dal
Speciality staples	Ragi flour, cold-pressed sunflower oil, poha, honey, sugar, Himalayan salt
Spices and condiments	Cassia powder, mustard, cloves, chilli flakes, tandoori spice blend
Processed food, beverages and value-added products	Sambhar powder, green tea, Assam tea, peanut, jaggery, chikki, flaxseeds, cashew nuts

Photographs 15 a and b: 24 Mantra products—Basmati brown rice and organic mustard oil

In 2020–21, sales of basic staples among these product segments made up the biggest part of Sresta's sales—around 57 per cent—followed by specialty staples at 28 per cent. Spices and condiments, processed food, beverages and value-added products accounted for 15 per cent (see *Graph 8: Segment-wise sales breakup 2020–21*).

Graph 8: Segment wise sales breakup 2020–21



Source: Sresta IPO

Sresta sells 24 Mantra products through various marketing channels, including modern retail, hypermarkets and supermarkets, traditional retail and online (including its own website). In India, 24 Mantra has a wide retail footprint—it is sold through 7,555 stores in India, including 1,791 modern trade stores and 5,764 general trade stores in 556 cities across 26 states and three Union territories. 24 Mantra leverages all possible marketing channels for its products (see *Table 4: Marketing channels)*.

Table 4: Marketing channels

Channel	Examples
Modern retail	Nature's Basket, Aditya Birla Store, Le Marche, Modern Bazaar
Hypermarket and supermarkets	More Supermarket, D-Mart, Spencer's, Needs, Nilgiris, Star Bazaar/Market, Reliance Fresh/Mart, Kolkata Mart
Specialty organic stores	24 Mantra, the Altitude Store
Traditional stores	Neighbourhood stores

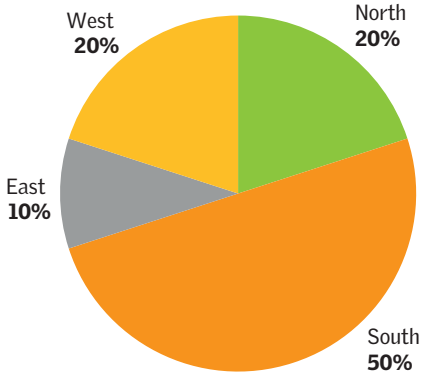
Source: Sresta IPO

Additionally, Sresta operates around 20 of its own retail stores—the 24 Mantra Organic Farm Shops—in Secunderabad and Hyderabad. Its retail penetration goes beyond metros and tier-one cities to tier-two and tier-three cities (see *Photograph 16*).

Photograph 16: 24 Mantra Organic Farm Shop, Hyderabad

Domestic sales in 2020–21 accounted for Rs 162.7 crore, or just over half of total sales. Three-fourths of domestic sales were generated primarily in tier one and metro areas while tier-two and tier-three Indian cities accounted for the remaining 27 per cent. Half of Sresta's domestic revenue came from south India, with the remainder coming from north, south and east. Its strong network of distributors helped Sresta achieve high sales (see *Graph 9: Sresta's region-wise share of domestic revenue*).

Graph 9: Sresta's region-wise share of domestic revenue

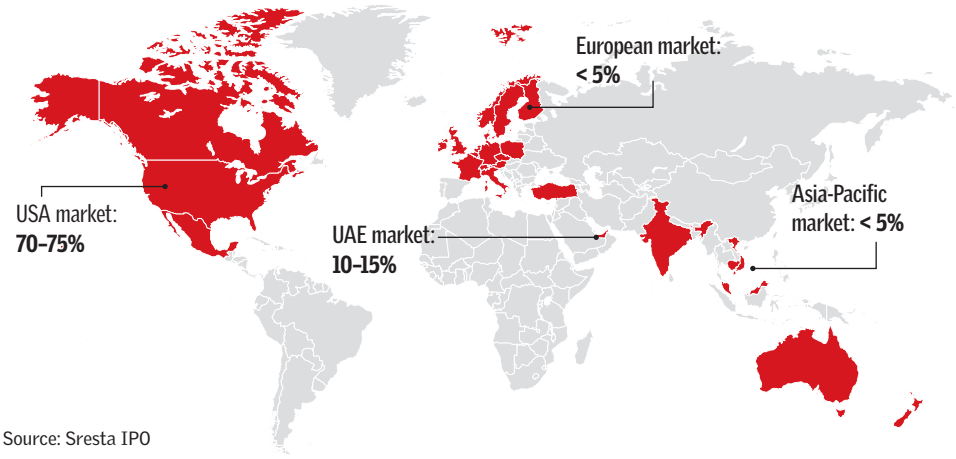


Source: Sresta IPO

Additionally, 24 Mantra is available in India on several well-known e-commerce sites, including bigbasket, Amazon and Flipkart etc. In Hyderabad, it also sells through its own website. Its e-commerce platform operating revenues have increased over time, rising from Rs 122.6 lakh in 2019–20 to Rs 465.59 lakh in 2020–21, a significant growth of 280 per cent over the previous three years. About 31 per cent of 24 Mantra's sales in 2020–21 was made online thanks to a strong online presence, which includes a website that is constantly updated, 300 blogs, 150 or so recipes, and the use of social media influencers. It has also leveraged social networking sites, e-commerce platforms, over-the-top channels, etc.

USA, Europe, the Middle East, Australia and the United Arab Emirates are among the 33 countries and/or regions where 24 Mantra products are offered for sale. For the fiscal year 2020–21, foreign sales accounted for 47.8 per cent of their total revenue. USA accounts for 75 per cent of all global sales, with other countries accounting the remaining 25 per cent. 24 Mantra products are available in 1,922 shops across USA, 958 of which are mainstream supermarkets like Walmart and Kroger and the remaining 964 Indian specialty shops (see *Map 3: Global footprint of 24 Mantra products and region-wise share in global revenue*).

Map 3: Global footprint of 24 Mantra products and region-wise share in global revenue



Source: Sresta IPO

Helping farmers grow organic

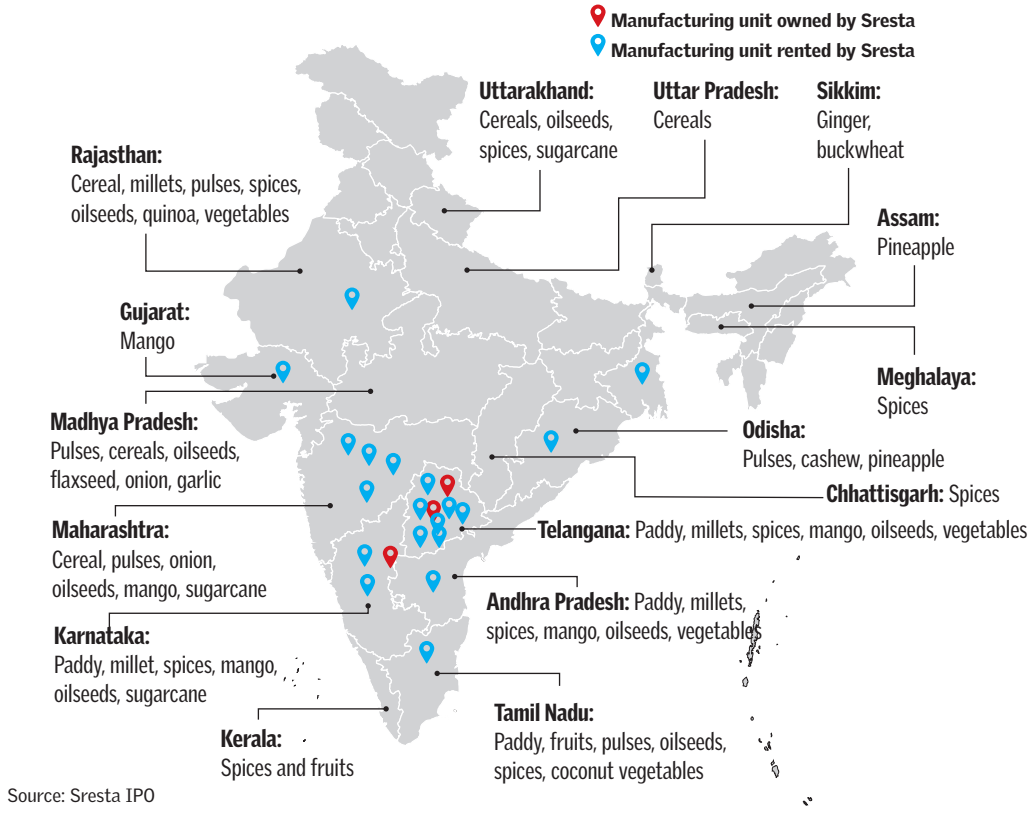
Funds raised have helped Sresta grow its farmer network from about 40 farmers in 2004 to around 40,000 farmers today, spread over 84 projects in about 16 states. It sources specific crops from each of these projects.

Each project is spread over a radius of 20 km. Sresta's engagement with farmers in any projects provide farmers with the following support (see *Table 5: Support provided by Sresta to farmers*).

Table 5: Support provided by Sresta to farmers

Activity	Details
Pre-sowing support	Training is provided based on the package of practices for each crop across kharif, rabi and zaid seasons. Support is provided on preparation of organic input.
Crop sowing	Information about crops sown, their variety and area in which they are cultivated is recorded.
Crop growth stage	Fields visits are made to record farmers' practices. Weeding, pest control and treatment of disease are carried out. Concerns if any are addressed, and expected yield recorded.
Pre-harvest stage	Field staff inspects the growth of crops and addresses problems if any. Farmers are trained on harvest and storage practices.
Post-harvest stage	Farmers' random samples are picked, mixed and sent to Hyderabad for testing.
Quality check	Five-point check including certification, third-party inspection, farm geo-tagging for traceability, sample collection and testing is carried out.
Procurement	Crop rate and date of procurement is shared with farmers. Farmers whose samples have passed are called to collection centres.
Collection centre	Collection centres are located within a range of 10–15 km from villages. After quality check, produce is weighed and procured.
Transportation	Crops procured are sent to warehouses and then to the nearest processing centre within a week.
Payment	Payment to be transferred into the bank accounts of the farmers within 14–21 days

Map 4: Sresta's procurement network and manufacturing units



Source: Sresta IPO

All of these projects need to meet Sresta's criteria, i.e. with native crops grown traditionally (with crop rotation, multi-cropping, etc. practised); low penetration of fertilizers; and farmers' eagerness to go organic as part of the process. Besides these, Sresta also considers the level of soil and water contamination, wind drift and flow of water from the neighbouring farms to ensure organic purity.

Sresta ensures proper monitoring and quality checks at these project locations. Extension personnel assist farmers in developing their capacities and responding in a timely manner to their concerns. They also double as procurement staff. Sresta procures a wide range of crops, including cereals, pulses, oilseeds, spices, millets, dry fruits, quinoa, flaxseeds, fruits and vegetables, coconut, sweeteners etc. (see *Map 4: Sresta's procurement network and manufacturing units*). In addition, Sresta sometimes reaches out to other credible organizations and FPOs to source products when they have a shortage.

Farmers share that Sresta provides regular training and advisories to address areas such as pest control and disease management, the right composition to prepare organic inputs and pesticides, and how and when to use them. Sresta

makes sure that all kinds of technical and advisory support are provided to its farmers. It has developed a package of organic practices for all the crops grown by the farmers, including those Sresta does not procure. To address the need of immediate payment to farmers. Sresta introduced the "aggregator" model, where it identifies and appoints an aggregator, who is usually a big farmer with adequate resources. The aggregator procures from the farmer on behalf of Sresta without compromising on any quality parameters and pays farmers a slightly lower rate, with Sresta kept informed. The aggregator receives a commission of 1 per cent on the total amount of procurement in exchange for its services (e.g. Rs 1,000 on procurement worth Rs 100,000).

"Farmers are at the core of our business. Initially it was difficult to convince farmers to adopt organic farming as during the first three to four years yield reduces; benefits are visible only later.

Keeping this in mind, we identify a location where farmers are pro-organic or use less chemicals. We have 100-plus trained field associates stationed in our project team to guide and support farmers and agronomists in the system."

—Rajshekhar Seelam, founder and Managing Director, Sresta

Quality assurance

Sresta also bears the cost of certification (Rs 2,000–2,500) for a farmer after his or her registration under a group for application of third-party certification. It assists farmers in the transition, maintaining farm history for the previous three years, and submission of an annual production plan (seeds to sale). Each farm is inspected several times, and all farming and marketing records are made available for inspection.

To ensure quality, in addition to local internal inspection of each project, staff from one project site inspect quality on other projects. This also aids in the learning and sharing practices adopted in the different projects. Sresta's projects are all certified organic by the Indian National Programme for Organic Production (NPOP). Farmers who supply Sresta with produce have their farms geo-tagged and their farming practises documented. Sresta also provides traceability on each 24 Mantra product, allowing any customer to trace the product back to the farmers by visiting the 24 Mantra website.

Sresta operates on an asset-light (low capex) business model. Its total asset value is approximately Rs 15 crore. However, its working capital is higher as most of its resources go into ensuring quality, maintaining organic integrity throughout its operations, and building a robust extension and procurement network by helping and being with farmers on the ground.

"It is never easy to convince farmers. Those who knew of the benefits of organic farming and were ready to experiment joined us. We needed to form a cluster to achieve unit economics, so we pushed for a group of ten farmers to cover a large area of land."

—Balasubramanian Narayanan, CEO, Sresta

Adding value

Sresta has 21 manufacturing units. Around 80 per cent of these units are located in south India. Sresta owns three of these units—two in Hyderabad and Telangana and one in Bidar, Karnataka. The units are used for final cleaning, secondary processing and additional quality checks before packing. These units have quality check labs and are audited annually by certification bodies. The remaining 18 hired manufacturing units are located in the states of Rajasthan, Madhya Pradesh, Telangana, Maharashtra, Tamil Nadu, Gujarat, West Bengal, Andhra Pradesh and Karnataka (see *Map 4: Sresta's procurement network and manufacturing units).*

Sresta deploys its staff during processing to take all due care before, during and after processing of oils, pulses, peanuts, jaggery and paddy to maintain the organic integrity of the produce. Production is carried out at these facilities are as per monthly targets agreed upon between the parties. All necessary compliance and annual audits are done as per the requirements (see *Photographs 17 and 18*).

Photograph 17: Srestha's manufacturing unit in Hyderabad

Photograph 18: A rented manufacturing unit in Mandsaur

Improving farmer incomes

Farmers have benefited from Sresta's operation. They have an assured market that offers 8–15 per cent more than market rates. Sresta collects farmers' produce from villages, loading and unloading are free at collection centres, there is no mandi tax, and weighing is done using only calibrated electronic weighing machines. It dispatches a vehicle for large volumes of crop. Farmers are paid online within 15–30 days (see *Photograph 19*).

Photograph 19: Coriander is procured and picked up from Ramgarh village in Madhya Pradesh.

Farmers said that these practices have improved their yield, and it is comparable to that of conventional crops. They said that their compost quality had improved, and they now make organic pesticides at home (see *Photograph 20*).

Photograph 20: Preparation of vermin compost

Farmers have now diversified crops and increased the area under crops procured by Sresta. Some people have also begun growing vegetables organically, an indication of how the market affects what needs to be cultivated.

Sresta encourages farmers to use their own seeds, records the finest harvests, and shares the contact information of these farmers with others who frequently buy seeds from them. Farmers revealed that they now often purchase seeds from other farmers. A few farmers produce their crops solely with the intention of selling them as seeds since doing so gets them higher prices. The use of traditional seeds protects crops from both adverse weather and market changes. It also boosts local crop biodiversity.

Farmers from both the Nawalgarh and Mandsaur projects reported that they had started growing additional crops and had also increased the area under crops procured by Sresta. As a result, more area has been turned to organic farming. Income has increased due to diversification and multiple crops.

Sresta's intervention has led to some entrepreneurial activities in the project. One example is of a farmer making vermin compost and selling it to fellow farmers in Nawalgarh. Another is Sresta's seed multiplication programme, which has motivated a few farmers in Mandsaur to grow seeds and sell them at a higher price.

"I rely on Sresta to sell my organic produce. For wheat, I got Rs 2,300 per quintal, i.e. Rs 300 more; for mustard I got Rs 7,100 per quintal, i.e. Rs 500 more; and for fenugreek I got Rs 6,400, i.e. Rs 400 more. Besides the transparent weighing process, loading and unloading are free in contrast to other places where I have to pay Rs 5–10 per bag."

—Karni Ram, farmer, Pillyon ke Daahar village, Sikar

"I get a higher price for most of the crops. In the case of flaxseed, against a market rate of Rs 7,500 per quintal, Sresta paid Rs 7,900; for wheat I get Rs 2,000 per quintal against the mandi rate of Rs 1,800; and for mustard, I get Rs 6,500 per quintal, i.e. Rs 300 more than the mandi rate."

— Kuldeep Dhakar, farmer, Lasundi village, Mandsaur

"I grow wheat, mustard and onions organically on 1.8 hectare with my brother. I prepare vermicompost for my own use on 3 hectares of land. Sresta connected me with farmers in need of vermicompost, which I sell at Rs 6 per kg if they pick it up from my farm, or Rs 6–10 per kg if it has to be delivered. Vermicomposting is a consistent source of income for me."

—Satyaveer, farmer, who returned to Nawalgarh, Jhunjhunu district, Rajasthan, in 2020 after losing his teaching job due to Covid-19

"After Sresta began purchasing produce from our village, I increased the area under mustard and began growing vegetables for my own consumption. I hear Sresta is planning to purchase them. People from nearby cities who know I grow organic vegetables contact me to purchase them. The flavour of these vegetables is far superior to that of chemically grown produce."

—Ram Lal, farmer, Nawalgarh

"We encourage farmers to grow and sell diverse traditional crops, such as native millet varieties. Apart from increasing income, growing diverse traditional crops is improving soil health and nutrition and increasing biodiversity."

—Pritam Tiwari, Assistant Manager, Sresta

Learnings

Sresta has demonstrated how organic farming can be profitable for farmers while operating with large-scale procurement and marketing in both domestic and international markets. It offers a variety of products and has taken advantage of all the marketing avenues that have allowed it to succeed in smaller domestic cities. It has been successful in using internet marketing tools and has utilized available marketing channels for the global market as well.

Sresta is able to maintain quality as it sources directly from farmers and has control over its value chain. Through a minimal capex strategy, it has been able to utilize the funds raised for expansion.

4. bigbasket

- bigbasket, an online supermarket, sells products from 70 different organic brands, including its own BB Royal Organic and BB Fresho Organic.
- It procures fruits and vegetables directly from 3,300 farmers and staples from six FPOs, cooperatives and mills.
- It demonstrates how, with an efficient supply chain, fruits and vegetables sold as "organically grown" can quickly reach consumers.

bigbasket was founded by a group of entrepreneurs in 2011. It operates an online inventory-led business-to-business (B2B) and business-to-consumer (B2C) model, enabling bulk and retail sales.

bigbasket was designated a unicorn in 2020 after its valuation surpassed $1 billion. Its legal name is Innovative Retail Concepts Private Limited. The Tata Group purchased a 64.3 per cent stake in the business in May 2021. bigbasket operates in 22 Indian states and three Union territories, serving approximately 5 million customers across 135 locations.

The company sells about 45,000 items, including groceries, fruits and vegetables, and other household items from about 3,000 brands, including their own. Overall, it works with 26,000 farmers across India.

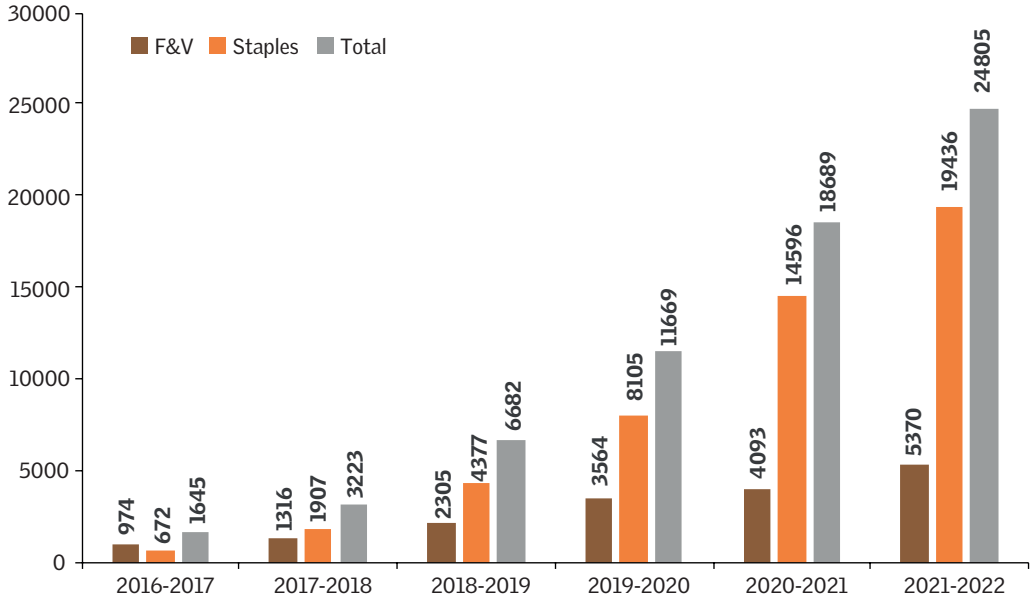
Apart from conventional food items, bigbasket also sell organic staples, and fruits and vegetables (F&V). The organic section is new and expanding, although it is a growing portfolio of its overall business.

This includes their own brand, for staples, it is BB Royal Organic, and for fruits and vegetables, it is BB Fresho Organic. It also sells organic staples of 70 other brands, such as Organic Tattva, 24 Mantra, Just Organik, Pro Nature, Pristine, Phalada Pure and Sure, Organic Shastra, Praakritik, Urn Organic, Live Organic, and Natureland Organics.

Around 60 per cent of bigbasket's revenue comes from the sales of both organic and conventional staples of other brands. The company's own brand products, including organic and conventional staples, account for the remaining 40 per cent of revenue.

The fastest-growing category was staples, where it grew by 2,792 per cent between 2016–17 and 2021–22, while F&V grew by 451 per cent. In terms of volumes of staples, F&V sold by bigbasket makes up about 13–15 per cent of its overall volume of sales (see *Graph 10*: *Sales of organic F&V and staples*).

Graph 10: Sales of organic F&V and staples

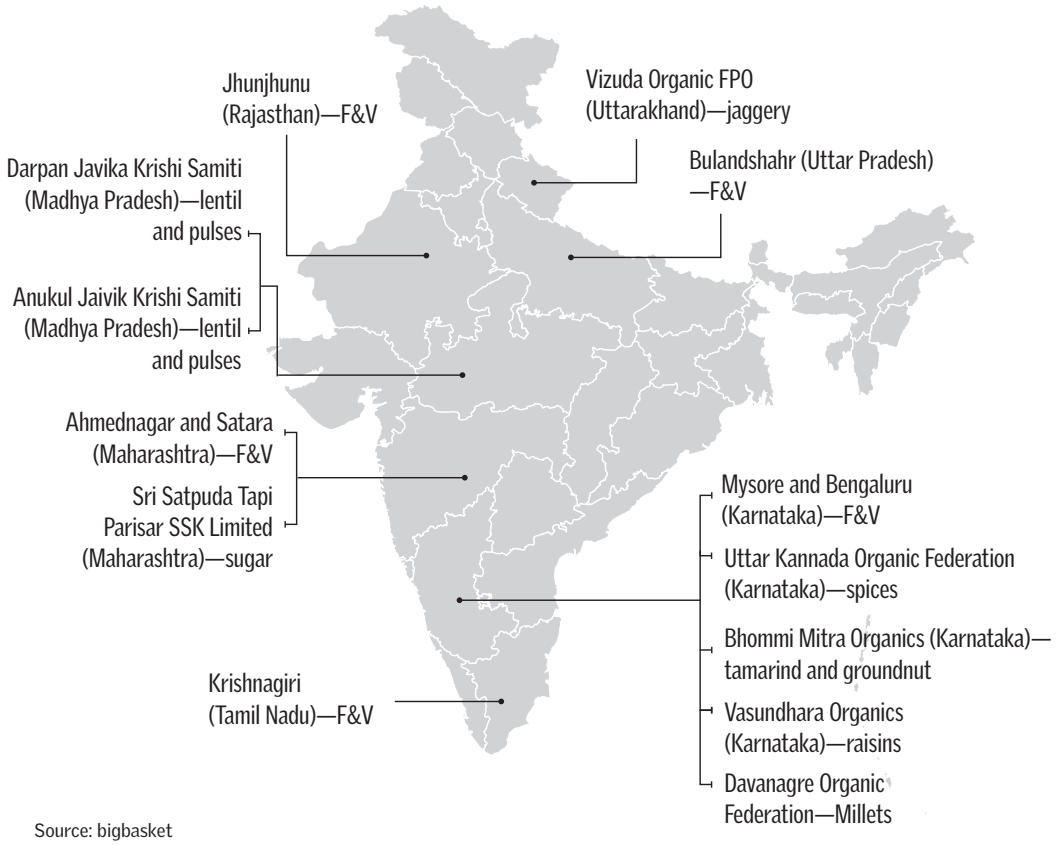


Source: bigbasket

To understand the status, challenges and learnings from bigbasket, a researcher from the Centre for Science and Environment travelled in 2022 to Mauharsa village, Anupshahr, Uttar Pradesh to visit the bigbasket facility for discussions with the relevant stakeholders.

bigbasket's own organic supply chain has two major sourcing models. First, it procures fruits and vegetables from farmers across five states—three are in the south, one is in the north, and the remaining two are in west India. Organic staples such as cereals, pulses, oilseeds, spices and sweeteners are sourced from vendors. The procurement depends on the market trend and agreed-upon rates; in most cases, vendors supply on a monthly basis (see *Map 5: Procurement network of bigbasket*).

Map 5: Procurement network of bigbasket



Source: bigbasket

Providing market access to farmers

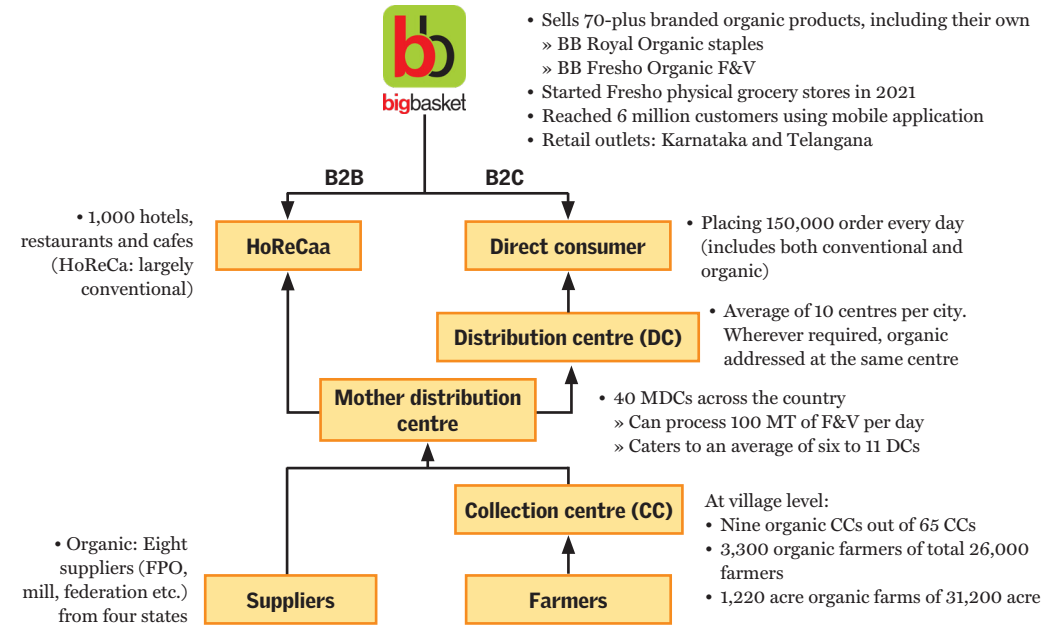
bigbasket ventured into the organic food segment in 2016. The number of organic farmers directly associated with it increased from 50 to 3,300 during 2016–22, and the associated land has increased from 102 acre (41.27 hectare) to 1,200 acre (485.62 hectare) in five states. Of the total farmers directly associated with bigbasket only 1,800 farmers actively supply to bigbasket.

bigbasket's organic food and vegetable direct procurement starts after it surveys a potential region to identify a village where farmers are already practising organic farming or are in transition to organic. Thereafter, it identifies 20–30 farmers, and a cluster is formed, covering an average of 50–70 acre (20.23–28.32 hectare). Within the cluster, the number of farmers can expand up to about 150. This encourages farmers who practise conventional farming to convert to organic gradually, starting from half an acre to 2 acre in the first year.

The business is carried on with farmers on a verbal agreement regarding for example what crops to grow, how much quantity is expected and what the rate

will be. As there is no legal contract between bigbasket and the farmers—either can choose to discontinue procurement at any time. bigbasket rides on the already established conventional supply chains, which are located near cities or on their outskirts, making them very effective for sourcing, distribution and ensuring quick delivery of organic products to customers (see *Figure 6: bigbasket's supply chain*).

Figure 6: bigbasket's supply chain



Source: CSE primary research

The backbone of bigbasket's supply chain is its mother distribution centres (MDCs), large warehouses owned by bigbasket and situated not more than 200 km from the villages. bigbasket procures produce directly from farmers in these villages and at the city outskirts. Overall, there are 40 MDCs across the country, catering to both organic and conventional produce, with a total capacity to process 100 metric tonne of F&V per day (see *Photograph 21*).

At the village level, bigbasket sets up a centrally located collection centre (CC) and deploys manpower. Nine of the 65 CCs in five states cater solely to organic produce. Farmers deliver their harvest here based on the demand received from MDCs in the form of an indent (see *Photograph 22*).

MDCs place and indent to a collection centre for sourcing F&V via the farmers' app based on previous orders. MDCs receive both conventional and organic produce, and bigbasket claims these are processed separately to maintain organic integrity. Once the indent is received at the collection centre (CC), the CC in-charge and the

Photograph 21: bigbasket's mother distribution centre (MDC)

Photograph 22: bigbasket's organic collection centre in Mauharsa village in Anupshahr, Uttar Pradesh

agronomist appointed by bigbasket retrieve the indent from the farmers' app and visit the field in the morning to check the quality of produce before harvest. Once satisfied with the quality, farmers are advised to take their produce before noon to the CC, where it is weighted.

The farmers' app is used by bigbasket to collect information from farmers at the time of registration. All the details about the farmer are filled in the app. The profile of the farmers is updated with the type of crops they are growing, time of sowing, probable time and duration of harvest, expected amount of the harvest, etc. This can be accessed by all the management, which helps facilitate decisions. It also helps to quickly refer to those farmers who can fulfil the next indent.

This is then routed to MDCs for sorting, grading, cleaning, packing, branding, storage and further distribution via trucks. Some vegetables, like potato, have a longer shelf-life, and are delivered across India. Others, like leafy vegetables and most fruits, have a shorter lifespan of 24 hours. These are sorted and delivered, based on the market demand, to the nearest MDC, and then to the nearest distribution centre, where they are quality checked before being delivered to the consumers. All this happens within 24 hours (see *Photograph 23*).

Photograph 23: Sorting and weighing of vegetables at a collection centre (CC) in Karnataka

On the marketing side, once orders are received from a consumer, an automated Purchase Order (PO) is developed and sent to the nearest mother distribution centre (MDC). There are roughly ten DCs in each city, and wherever organic produce is required, it is addressed. The products received at the DC are delivered to individual customers as per the schedule. This helps reduce the transportation time from the MDCs to the distribution centre (DC), which receives items from the MDCs and distributes them to the consumers within an hour. This is its edge over its competitors. Orders can be placed through their portal as well as their app. bigbasket currently processes 150,000 orders every day, including both organic and conventional produce.

In the case of the hotels, restaurants, and cafes (HoReCa) segment—started in 2017—supplies are generally in bulk, based on the order, and are sent to the customer directly from the MDC. Details on how many of these 1,000 HoReCa demand only organic produce are not available.

Photographs 24 a and b: Examples of bigbasket products—organic millet and apples

With a quick rotating inventory for perishables, the company claims that it minimizes waste to about 5 per cent, which helps them cut costs by about 3 per cent.

bigbasket entered the brick-and-mortar retail space in 2021, with four Fresho by bigbasket stores in Karnataka and a new store in Khammam, Telangana, in February 2022. It has plans to expand across India (see *Photograph 25*).

Photograph 25: Fresho by bigbasket store in Karnataka

Quality assurance

The company sells organic fruits and vegetables under the Participatory Guarantee System of India, which is also provided for the process of "in transition" from conventional to organic. The company, therefore, calls its fruits and vegetables "organically grown" rather than "organically certified". They claim that this allows

farmers to keep selling even during the transition period. Staples are purchased from the National Programme for Organic Production certified vendors, who are already certified at the time of purchase.

Among consumers, traceability is an important aspect of buying organic. While bigbasket is still to incorporate this into its system, it is able to trace back produce at the farmer's level due to the geotagging of farms.

Additionally, walk-in freezers, chill rooms, refrigerated warehouses and a fleet of trucks enable bigbasket to seamlessly sell organic perishables online. In addition, warehouses, distribution channels and the portal are all theirs, enabling them to offer the consumer competitive prices.

bigbasket is also attempting to reduce its carbon footprint as packaging and delivery to customers are determined by the type of product. Fruits and vegetables, for example, are typically delivered in paper or plastic boxes (package free). bigbasket also began using electric vehicles (EVs) for delivery in 2016, and they currently have over 2,500 EVs.

Improving farmer income

Selling organic produce to bigbasket has increased the income of farmers. Several associated factors, including low cost of production, reduced logistical expenses, quality assurance, assured sales and premium prices have also spurred the increase in farmer income. Farmers also told CSE that with bigbasket, their logistics costs have reduced significantly. They said that if the cost of cultivation is Rs 20,000 per acre (0.40 hectare) for potatoes with conventional, it is Rs 4,000–6,000 with organic, a 70 per cent reduction in the cost of production. This applies with some variation in the case of fruits and vegetables.

Abid Ali from Mauharsa village, Bulandshahr, harvested 13.2 quintal of potato from 2 acre of land in 2022. He sold it to bigbasket at Rs 7 per kg, 15 per cent higher than the mandi rate. He also saved on transportation, labour, weighing and commission costs. His income from potato increased by almost 70 per cent (see *Table 6: Farmer Abid Ali's income when he sold produce at the mandi and to bigbasket*).

bigbasket aims to ensure that farmers get a premium price for organic produce despite fluctuations in market rates. For instance, at the start of the season, a conventional rate for a particular crop is decided as per the prevailing market rates by the company and agreed upon by the farmers. Once the conventional

Table 6: Farmer Abid Ali's income when he sold produce at the mandi and to bigbasket

Cost heads	At the local mandi	To bigbasket
Labour cost and transportation	Rs 2,649	Rs 700 (approximately)
Weighing	Rs 264	Nil
Commissions	Rs 462	Nil
Total expenses	Rs 3,366	Rs 700
Income from sales	Rs 9,240	Rs 10,626
Income after deducting post-harvest cost	Rs 5,874	Rs 9,926

Source: CSE primary research

rate is finalized, a premium rate for the organic harvests is fixed, usually in the range of 10–15 per cent, depending on the crop type. This premium rate remains fixed all throughout the season, even when the market rates for the crop decline occasionally. However, if the market rate increases for that particular crop, the farmers get the benefit of the increased rate and the premium (see *Table 7: Price received by farmers for organically grown brinjal in three different scenarios*).

Table 7: Price received by farmers for organically grown brinjal in three different scenarios

Time	Conventional	Organically grown	Actual rate offered by bigbasket to farmers despite fluctuations
	Rate/kg	Rate/kg	Rate/kg
Scenario 1 (prefixed rate)	8.00	9.20	9.20
Scenario 2 (depleted rate)	7.00	8.05	9.20
Scenario 3 (inflated rate)	8.50	9.77	9.77

Source: CSE primary research

For staples, federations such as Davanagere Organic Farmers Federation buy organic produce from farmers at rates 6–7 per cent higher than farmers receive at the mandi. They return 35 per cent of the profit after sale to farmers. Farmers thus effectively receive an overall profit of 42–43 per cent. bigbasket does not have any say in this.

Farmers shared that during the initial years, yields of organically grown crops were more or less comparable to yields of conventionally grown crops, but subsequently they increased significantly. To promote organic produce in a region where it is abundant, the price of organic produce is comparable with conventional produce. In such cases, only organic produce is retained in the bigbasket inventory, while conventional produce from the same category is removed. For instance, organic turmeric, banana flowers and coconuts are grown in abundance in the south India, so bigbasket sells only organic in this region.

Helping farmers grow organic

In terms of assistance, apart from ensuring market access in the village itself, bigbasket provides farmers with some training. They also assist in the construction of compost pits in villages. An agronomist is stationed in each village to help farmers with market insights and quality assurance for their crops. These efforts are part of bigbasket's back-end farmer supply-chain programme Farmer Connect (see *Photograph 26*).

Photograph 26: Compost pit in Mauharsa village, Bulandshahr

Farmer Connect aims to bridge the gap between farmers and markets. Apart from providing a platform for farmer producer organizations its key component is the deployment at village collection centres (CC) of an agronomist, who is technically competent and can advise farmers on what is in demand and what to grow in the area. Farmers also understand market demand and adjust crop varieties accordingly. When there is an abundance of a particular organic produce grown in an area, the company promotes that product online to create demand, which eventually benefits the farmers.

"Small farmers growing fruits and vegetables on 1 acre of land rarely go for certification. We help farmers in the certification process, but don't sell the produce as certified products because they are in transition. This allows farmers to sell their produce even during the certification process. If farmers are not able to sell their produce during the certification process, they will not wait until they get their certification."

—Seshu Kumar, National Head, Buying and Merchandising, bigbasket

"The government's laboratory tests are also highly priced at about Rs 15,000 per sample. They need to be reduced and traceability should be mainstreamed to help sale of organic products."

—Kariyappa K., CEO of Davanagere Organic Federation, Karnataka

Setting the right price

bigbasket sells both conventional and organic products; the rates of 18 randomly chosen products sold through their app in Delhi were compared. The prices of 15 of these products were higher—by 2–160 per cent—than the prices of conventional products. For six of these, the difference was more than 33 per cent. Only in three instances, they were almost equal (see *Table 8: Comparison of rates of fruits and vegetables of bigbasket [for Delhi]*).

Table 8: Comparison of rates of fruits and vegetables of bigbasket (for Delhi)

S. no.	Inventory	BB Conventional (in Rs/kg)	BB Organic (in Rs/kg)	Per cent higher or lower than conventional
1	Mosambi	39	101	160
2	Bhindi	58.7	58.8	Almost equal
3	Garlic	78	145	85
4	Ginger	204	216.8	06
5	Lemon	165	166.6	Almost equal
6	Potato	30.5	40.7	33
7	Onion	28.7	40	39
8	Tomato	67	72.3	07
9	French beans	122.5	166.6	36
10	Moong dal	135	152	13
11	Masoor dal	129	140	08
12	Tur dal	153	162	06
13	Chana dal	89	105	18
14	Kala chana	90	92.5	03
16	Cashew	1,109	1,099	Almost equal
17	Black pepper powder	900	920	02
18	White sugar	47	69	47

Note: Rates taken from bigbasket's website without discounts; when price of 1 kg is not given multipliers were used to determine per kg rate as on September 16, 2022.

"Sometimes the margin for organic is even lower than for conventional because we are building the category."

—Vipul Mittal, National Category Head, bigbasket

	**"bigbasket's Farmer Connect programme seeks to bridge the gap between farmers and markets. The programme enables the company to work directly with farmers who cultivate fruits and vegetables, providing assistance such as capacity building, quality assurance and market insights on the most profitable crops. This ensures the long-term livelihood of farmers."** —Dr Bharat Singh, bigbasket National Head, Potato Sourcing
	**"Selling organic produce in a local mandi is a nightmare, with aggregator commissions, weight cuts, labour and transportation costs and so on, leaving me with minimal profits—just enough to prepare ourselves for the next season."** —Abid Ali, potato farmer, Mauharsa village
	**"I recently sold various varieties of gourd to bigbasket for Rs 15 per kg, nearly double of what I would have received at the local mandi."** — Praveen Kumar, farmer, Mauharsa village

Learnings

One of the concerns is that bigbasket does not currently have a formal agreement with farmers to buy directly from them, and they can discontinue purchases at any time. Another concern is that it sells fruits and vegetables as "organically grown" produce rather than certified organic produce. While on the one hand, it helps farmers under transition to sell their produce, on the other hand it runs a risk of no assured quality for the consumer and laxity in complying with certification needs by a farmer.

The good part is that bigbasket is at least able to develop a market for organic fruits and vegetables, which are perishable and difficult to manage due to limited and costly supply chain. Fruits and vegetables help farmers earn regular income and consumers get them at doorsteps with a single click.

SECTION C

GOVERNMENT PROGRAMMES

5. Odisha Millets Mission

- Odisha Millets Mission (OMM), aimed at promoting millet production and household consumption, has now entered into its second phase—covering 2022–27—with a total budget of Rs 2,808 crore.
- In 2017–22, OMM procured millets from 1.29 lakh farmers in 17,000 villages of 19 districts of Odisha.
- It helped farmers grow millets by providing incentives and minimum support price.
- It helped in increasing millet consumption by incorporating the grain into state-level safety net programmes.
- It connects to consumers through kiosks, millet stores, cafes and Millets on Wheels and raises awareness through the OMM mascot Milli and brand Millet Shakti.
- It leverages farmer producer organizations and women self-help groups.

The Odisha government has been fairly active in millet promotion and marketing through its flagship programme Odisha Millet Mission (OMM). The programme has received accolades from several national and international agencies such as NITI Aayog, Food and Agriculture Organization and World Food Programme.

To understand OMM's on-ground implementation, status, challenges and learnings, a researcher from the Centre for Science and Environment travelled in 2022 to Kandhamal, home to Particularly Vulnerable Tribal Groups (PVTGs) such as Kutia Kondh; the mining district of Keonjhar and Bhubaneshwar and spoke to relevant stakeholders. Inputs were also provided by stakeholders from Koraput, Gajapati and Nuapada districts.

OMM is a flagship programme of the Department of Agriculture and Farmers' Empowerment, Government of Odisha, aimed at promoting millets in tribal parts of the states. It was launched in 2017 with a number of key objectives, including:

- Promoting household-level consumption and improving the productivity of millet crops;
- Promoting FPOs for marketing; and
- Including millets in social safety net programmes like Integrated Child Development Scheme (ICDS), Midday Meal Scheme (MDM) and Public Distribution System (PDS).

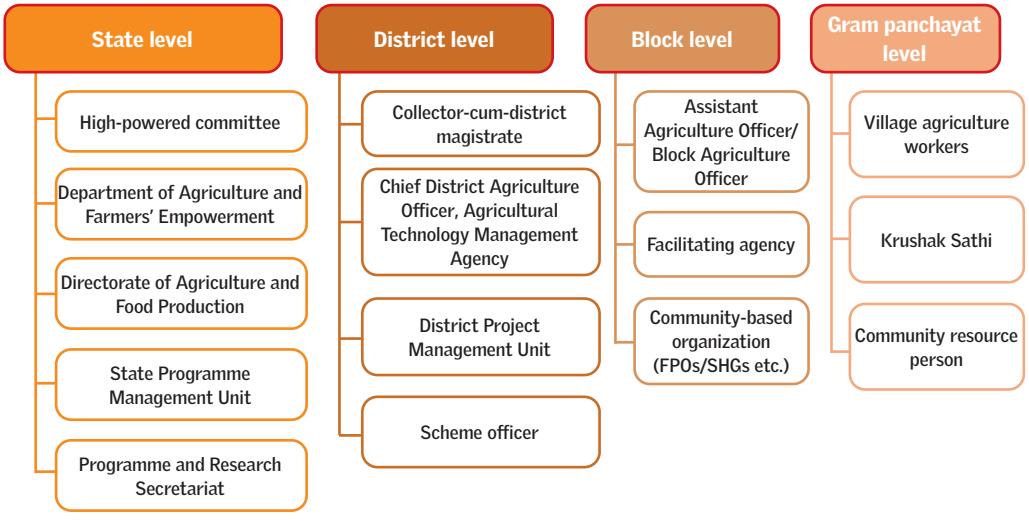
The major targets set for the next phase of the programme in 2022–27 include:

- At least a 25 per cent increase in consumption from the baseline;
- Conservation and promotion of millet landraces in the state;
- Promotion of at least 500 post-harvest and processing enterprises with women self-help groups (WSHGs) or farmer producer organizations (FPOs); and
- Promoting 142 FPOs in five years to facilitate millet markets and export of millet-based products.

The total programme budget for the first five years (2017–22) was Rs 557.79 crore. Funding of Rs 2,808.39 crore has been approved for the mission's extension and expansion over the next five years (2022–27).

OMM is a three-partied model, involving the Odisha government, academia (Nabakrushna Choudhury Centre for Development Studies [NCDS]), and community-based organizations (Watershed Support Services and Activities Network [WASSAN] and others), all of which adhere to their defined roles and responsibilities. The administrative structure for implementing OMM is decentralized, ranging from the state to the block and gram panchayat levels (see *Figure 7: Administrative mechanism to implement OMM).*

Figure 7: Administrative mechanism to implement OMM

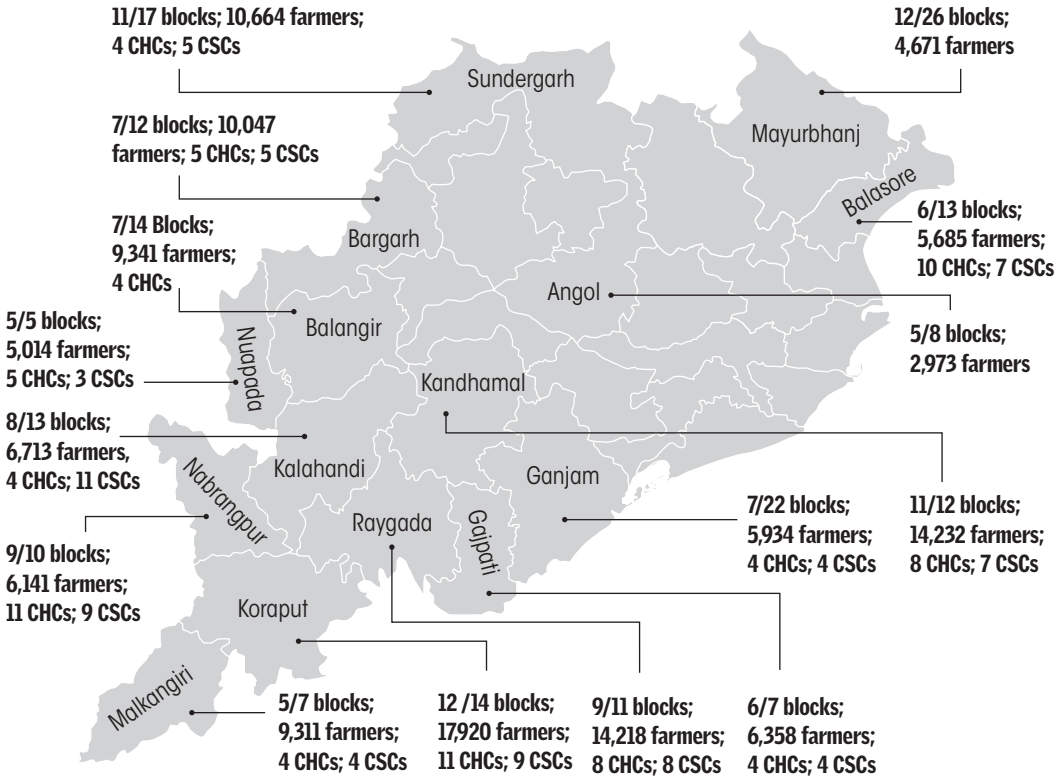


Several departments are involved in OMM, including the Department of Agriculture and Farmers' Empowerment, Department of ST & SC Development, Minorities and Backward Classes Welfare Department, Mission Shakti for women self-help groups (WSHGs), Department of Women and Child Development for Integrated Child Development Services (ICDS), Department of Civil Supply for

Public Distribution System (PDS), and now the Department of Mass Education for midday meal (MDM). Inter-department coordination, resource sharing and support are important components of OMM.

As of July 2022, OMM covers 19 of the state's 30 districts, but data is available only for 15. The remaining four (Boudh, Dhenkanal, Jharsuguda and Nayagarh) became part of OMM recently. OMM currently covers 142 blocks, 1,722 gram panchayats, 16,989 villages and over 1.29 lakh farmers. Blocks are identified on the basis of tribal population and prior history of millet production. In 2020–21, over 7 lakh quintal of millet were produced, of which 27 per cent was procured by the government (*see Map 6: Spread of OMM across Odisha*).

Map 6: Spread of OMM across Odisha



Notes: CHCs: Custom hiring centres; CSCs: Community seed centres
Source : Odisha Millets Mission

"Odisha Millets Mission is a special initiative. It is the first agriculture programme aimed at reviving millet on farms and on plates. Nutrition and food security are at the core of the programme. A wide range of instruments are being developed to meet this goal."

—M. Muthukumar, former Director, Agriculture and Food Production, Odisha

Improving market for millets

Leveraging FPOs

Promoting FPOs to create marketing avenues is among the major objectives of OMM. FPOs are currently chosen from existing ones. If there is no existing FPO in the block, a women self-help group is supported and registered as an FPO. FPOs are also provided training to understand business aspects by trainers from civil society organizations and chief executive officers (CEOs) of other successful FPOs.

In the first phase, OMM had a limited budget of Rs 10.21 lakh (including DMF funds of Rs 77,000 and Rs 56,000 for FPOs in Keonjhar and Sundargarh respectively) for FPO promotion. Funds are given during a three-year period under different heads such as salary of the CEO, farmer mobilization, FPO office expenses and registration of goods and services tax (GST). A one-time grant of Rs 40,000 is provided as working capital. FPOs can raise funds from other agencies like the National Bank for Agriculture and Rural Development (NABARD) or Small Farmers Agribusiness Consortium (SFAC). Now, in the second phase, the funding for the FPO is expected to increase as the total funding of the programme is increased over fivefold.

The FPOs are free to sell the processed millets in the open market or help in aggregating the produce and supply it to the Tribal Development Co-operative Corporation of Odisha Limited (TDCCOL) at a service charge of Rs 31.5 per quintal (including labour charges) plus 1 per cent of the MSP. The FPO earns an additional Rs 26 per quintal if it also performs mandi management tasks such as loading, measuring and packaging products in gunny bags. It gets an extra Rs 10 per quintal if it also unloads the millets, which is usually done by TDCCOL. Currently, there are a total of 76 FPOs working with OMM; the target for the second phase is to promote an additional 142 FPOs.

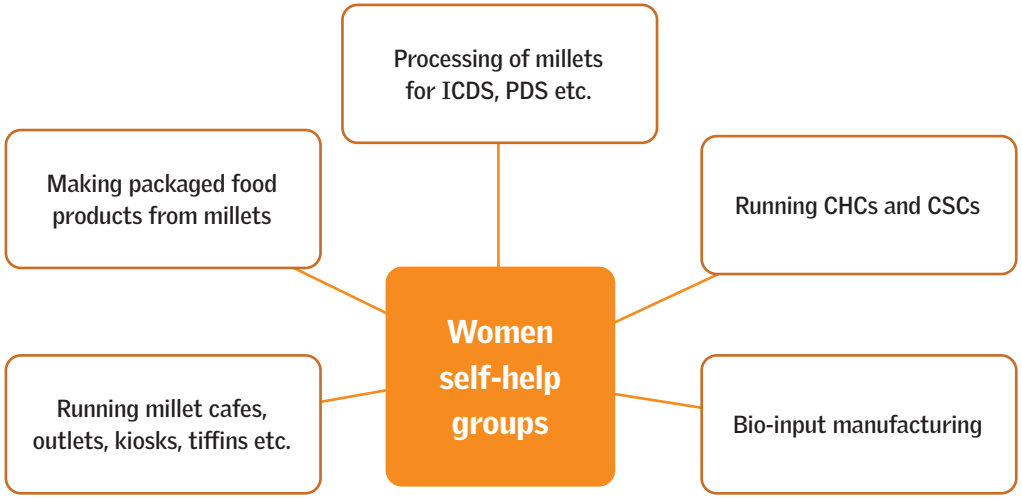
However, the FPOs at both Tumbdibanda block in Kandhamal district and Jhumpura block in Keonjhar district seem to be engaged in basic activities such as minor processing and especially acting just as aggregators for TDCCOL. Apart from a lack of funding and expertise, the nature of FPOs could also be the reason behind this. For instance, Dasheri in Jhumpura block, an FPO under OMM, has as the name suggests been dealing since its inception in dasheri mangoes.

Women SHGs providing last-mile market access

To increase consumption and create market channels, women self-help groups (WSHGs) are heavily mobilized. They are kept at the centre of all the activities

of OMM. Capacity-building exercises are also conducted for WSHGs members who run kiosks, cafes, Millets on Wheels, community service centres (CSCs) and community hiring centres (CHCs), processing units etc. Facilitating agencies also give them cookery classes and teach them basic business skills required to run the business (see *Figure 8: Last-mile access provided by women SHGs*).

Figure 8: Last-mile access provided by women SHGs



The Ma Brundavati Self-Help Group in Sunagam, Kandhamal, runs a local millet kiosk. The menu includes pakodi, bada, singda, poori, aloo-chap etc., all made from ragi. On average, the SHG earns Rs 500 per day, with the potential to earn Rs 1,000 on a good day. At the main processing unit in Keonjhar city, the Krishna Self-Help Group processes ragi for ragi laddu under the Integrated Child Development Scheme (ICDS). Another women's self-help group Laxmi Saraswati Joint Unit uses the ragi processed here to make ragi laddu mix for the Jhumpura block of Keonjhar (see *Photograph 27).*

Millets in the safety net programmes

Ragi is also included in the PDS; 1 kg (2 kg in the areas where procurement is high) of rice is replaced by ragi and distributed to all households in OMM districts once a month at the rate of Rs 1 per kg. In 2019–20, a total of 92,000 quintal of ragi was distributed to over 50 lakh cardholders, which was 97 per cent of the total procurement.

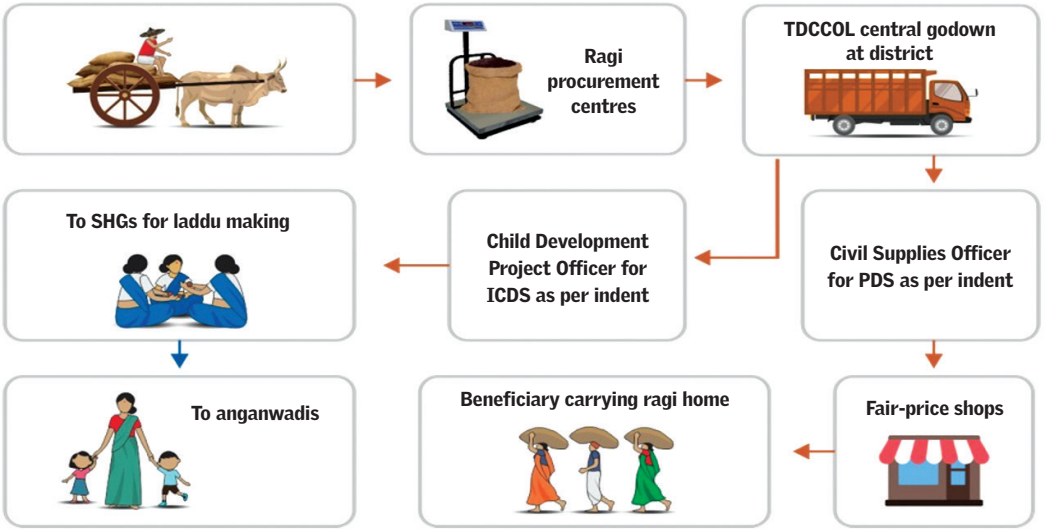
The Keonjhar district authorities with DMF's support have integrated millets into children's diets through a ragi laddu programme, which began in July 2020. Through anganwadi centres,the programme now covers over 80,000 preschool children.

Photograph 27: Ragi laddu mix being made by members of women's self-help group Laxmi Saraswati Joint Unit in Jhumpura, Keonjhar

The concerned women's self-help group of the block mixes millet with groundnut, white sesame, sugar and cardamom. Anganwadi workers deliver packs of 160 gram of the mix—which has a shelf life of three months—to the beneficiaries. According to the guidelines, one pack makes eight laddus. A child should consume a pack—with some ghee added—over the course of four weeks. The recipe was developed by the Central Food Technological Research Institute (CFTRI).

The ragi laddu scheme has been well received by the targeted beneficiaries, according to Kalyani Satapathi, Block Project Coordinator for Mission Shakti. A ragi laddu is also sold for Rs 10 at the millet cafes and millet outlets. The project has also begun in Sundargarh, Odisha, and is expected to soon expand to other areas (see *Figure 9: Procurement and distribution under safety net programmes*).

Figure 9: Procurement and distribution under safety net programmes



Connecting millets to consumers

As millets have not been a staple for a long time, OMM recognized the need to promote millet recipes. Millets are being promoted through trainings, food festivals, campaigns and social media platforms. To broaden its reach, OMM has created a mascot Millet Girl Milli—who is quick and smart as she eats millets—to stir interest among children. Posters of Milli are pasted around schools and anganwadi centres (see *Figure 10: OMM mascot Millet Girl Milli*).

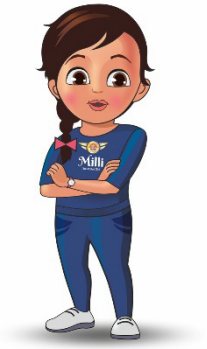


Figure 10: OMM mascot Millet Girl Milli

OMM has also created a millet brand with the name Millet Shakti. Several products like cookies, savoury snacks, vermicelli, processed millets etc. are sold at the millet outlets and cafes under the brand. To enhance the marketability of millets, however, more focus should be on value addition. Currently, only Dibyajyoti SHG, Sundergarh, has 40 value-added food products; Shaktimayee Federation, Bhubaneshwar, has 18; while Baba Simleswari,

Mayurbhanj, makes just two food products, ragi khurma and ragi rosecake. The limited number of SHGs making these value added products restricts the potential of increased acceptance through ready-to-eat food, especially among urban populace in view (see *Photograph 28).*

Photograph 28: OMM products under the brand Millet Shakti

The Millet Shakti Cafe located at the district headquarters in Keonjhar, one of the three in the state, is run by Sabita Das and Poornima Shahu. It sells millets-based dishes and packaged foods such as millet cookies, millet namkeens, millet vermicelli etc. Their daily earnings are in the range of Rs 1,500–2,000. Millets on Wheels, millet cafes, millet kiosks and millet outlets have been established in an effort to increase awareness and consumption. Apart from rural kiosks, however, the number of other establishments is abysmally low. There are over 116 rural millet kiosks, but only three Millets on Wheels—one in Mayurbhanj, Kalahandi and Sundargarh each. There are only two millet cafes—one in Keonjhar and one in Sundargarh. In addition, there is just one millet outlet at Krushi Bhawan (see *Photographs 29 and 30).*

Photograph 29: Millet outlet in Krushi Bhawan, Bhubaneshwar

Photograph 30: Millet cafe in Keonjhar

OMM has used several marketing channels to take millets to consumers (see *Figure 11: Multiple initiative are being taken to create a market for millets*).

Figure 11: Multiple initiatives are being taken to create a market for millets

OMM analysis shows that as per the mid-term evaluation (2019–20 for first batch of seven district and 29 blocks), using 2016–17 as a baseline, the number of farmer households that produce and consume millet increased for all seasons. Consumption of millet-farmer households consuming millet in winter has increased from 64.3 to 98.5 per cent, in the rainy season from 66.9 to 72.6 per cent and in summer from 85.8 to 89.9 per cent. OMM is still to conduct a study to evaluate health improvements in the intervention districts.

"The decline of millets was not just due to the Green Revolution, but also because non-tribal people did not accept them. It's fantastic that the state is now promoting millets. But the government is aggressively marketing them in tribal areas only. This could once again stereotype millets as poor peoples' food or tribal food, and may drive young tribals away from millets rather than embracing them."

—Umi Daniel, Director of Migration and Education at development non-profit Action Education, South Asia

"OMM has helped its members earn extra money to better provide for their families."

—Ganga Devi, member of Krishana WSHG, Keonjhar. She participated in cooking classes conducted by CFTRI, Mysore, in collaboration with OMM

"There would be no need to look for alternatives like exporting millets if adequate processing facilities are made available to make packaged food items. Adequate processing facilities can help penetrate millets among urban population and will boost the demand for millets manifold."

—Abhijit Mohanty, Programme Manager, Knowledge Building, WASSAN

"Increasing millet consumption is one of the objectives of OMM. To achieve this, there have been over 4,000–5,000 rallies and campaigns in the last five years, and around 9.25 lakh people have been reached out to."

—Dinesh Balam, Associate Director, WASSAN

More millets, more income

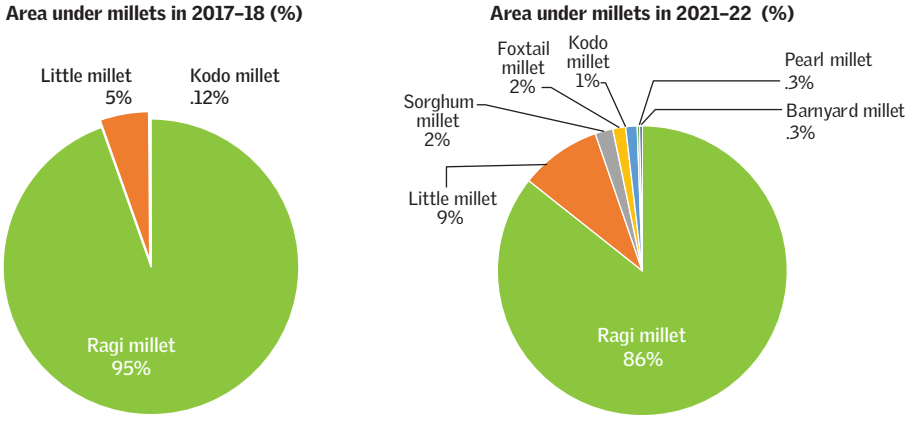
Odisha has recorded a sharp rise in millet crop production following OMM. Ragi production has increased from 40,000 quintal in 2016–17 to over 7 lakh quintal in 2020–21. The number of farmers enrolled under the programme has grown by 15 times from the start of the programme—from 8,000 in 2017 to about 1.3 lakh in July 2022. The average yield has also improved by close to 28 per cent, owing to agroecological practices and use of suitable local seeds identified through participatory varietal trials and farmer preference analysis. Well-performing cultivars are purified and their multiplication is done under community-managed seed systems.

OMM does not promote the use of chemical fertilizers. However, through knowledge sharing and demonstration, it was seen that yield of ragi increased

significantly from 8 quintal per hectare to up to 16 quintal per hectare. Also, due to OMM's focus on the use of quality seeds, the proportion of farmers using certified seeds increased from 0.4 per cent to 32.3 per cent.

Although ragi dominates the programme, the share of other millets is growing. This is true for all six varieties of non-ragi millets. After ragi, little millet and sorghum cover the most area. Lack of seeds for other millets and lack of machines for post-harvest value addition, particularly for minor millets, are cited as the main reasons for lower cultivation of millets other than ragi, little millets and sorghum (see *Graph 110: Area under millets in 2017–18 and 2021–22*).

Graph 11: Area under millets in 2017–18 and 2021–22



Source : Odisha Millets Mission

"In the last five years, the production of ragi under OMM has increased by over 17 times. The procurement has been increasing too. This year we are expecting to procure 4–6 lakh quintal of ragi."

—Kalpana Pradhan, Scheme Officer, OMM

The minimum selling price (MSP) has been kept significantly higher, double that of paddy. Ragi has an MSP of Rs 3,377 per quintal, while paddy has an MSP of only Rs 1,940 per quintal. Benchmarking of the prices (standardization of prices in comparison to other millet crops) for small millet and foxtail millet is done to facilitate their production.

OMM encourages farmers by incentivizing and building their capacities for mainstreaming of millets. The incentive includes direct bank transfers of Rs 9,500 per hectare over a three-year period and provision of inputs like seeds and organic fertilizers. Local NGOs organize regular capacity-building exercises for farmers.

An automated portal called M-PAS (Millets-Procurement Automation System) has been developed along the lines of P-PAS (Paddy-Procurement Automation System) for procurement of millet conforming to Fair Average Quality (FAQ) norms.

According to a comparative study conducted by the Nabakrushna Choudhury Centre for Development Studies (NCDS), Bhubaneswar, of the baseline report and one year of implementation in 2017, the value of produce per hectare in intervention households has doubled from Rs 9,477 to Rs 20,701, and income has tripled from Rs 3,957 to Rs 12,486.

Millets are sturdy crops that are more resilient to climate vulnerability and require less water and farm inputs. This is cited as another reason for improvements in incomes.

Photograph 31: Sunakar Mahanta and his family at their ragi farms in Ramchandrapur village, Keonjhar

Photograph 32: Farmers in Tumudibandha block, Kandhamal, show the millets that they grow

"I remember my parents growing a variety of millets. Now we've started growing millets again under OMM."

—Jamuna Mahanto, farmer, Chingudi Posi village, Keonjhar. Millet cultivation helped her earn an extra Rs 10,000–11,000 annually from the one-acre farm she grew ragi on.

"Millets such as kwari, kangu, dhuliya and shakara are endemic to the area."

—Kureladu Jani, president of Kandhamal, the only women self-help group in Burlu Baru village

"We learned how to make organic khad like jeevamrit and beejamrit, organic remedies such as handi dava to combat pests and diseases, as well as cultivation techniques for better yield such as system of millet intensification (SMI), line transplanting and line sowing."

—Balram, farmer, Gajapati district

Learnings

While there is a notable success in the mission, scale-up remains a challenge. For example, in only five out of 15 districts (for which data is available), more than 5 per cent of the farmers are involved with the programme. Further, of the fifteen districts, only two districts have over 5 per cent of the net sown area under millets.

Other areas that need attention include, one, the dominance of ragi over other millets. Ragi formed over 85 per cent of the total millet procurement in 2021–22; the trend is slowly changing now. Two, government procurement is capped at 5 quintal per hectare though the average yield is 15 quintal per hectare and there are only a few millet enterprises such as millet outlets, millet cafes and Millets on Wheels.

To scale up millet production, it would be useful to create a parallel market in urban spaces, as well as to involve more and procure more from farmers in regions where OMM is present. Millets-based safety net programmes as well as millet-selling enterprises require expansion. FPOs and WSHGs should be leveraged more. There is also concern that millets should not be relegated as a tribal food and that OMM should expand outside tribal hamlets to make millets part of the local food systems. Mapping the health and environmental benefits of millets consumption and cultivation will aid in their further adoption and spread.

6. Prakritik Kheti Khushhal Kisan Yojana of Himachal Pradesh

- Prakriti Kheti Khushhal Kisan Yojana (PK3Y) started in 2018 to promote natural farming throughout Himachal Pradesh. It is helping 9.6 lakh farmers across 12 districts.
- PK3Y aims to reduce dependence on the market for inputs and lower the cost of cultivation for farmers.
- Natural farming is inherently labour intensive and faces yield-related challenges in its initial years. Additionally, access to the market is the biggest challenge for natural farmers.
- Several initiatives are being taken, including self-declared certification, leveraging FPOs, captive markets, dedicated space in agricultural produce marketing committees (APMCs) and canopies. However their implementation and success remains to be seen.

Himachal Pradesh is promoting natural farming through its Prakritik Kheti Khushhal Kisan Yojana (PK3Y) scheme launched by the state's chief minister in 2018. Objectives of the scheme include decreasing farmer dependence on the market for inputs; increasing farmer income; conservation of the environment, soil health and water; encouraging climate-resilient farming; and promotion of desi seeds and healthy food. The aim is to become a fully natural farming state.

To understand PK3Y's on-ground implementation, status, challenges and learnings, a researcher from the Centre for Science and Environment travelled in 2022 to Solan, Shimla, Bilaspur and Mandi districts of Himachal Pradesh and spoke to concerned stakeholders.

Helping farmers adopt natural farming

Mechanism in place to promote natural farming

The administrative structure put in place includes a state-level committee for monitoring under the chairmanship of the chief minister and a state-level task

force headed by the chief secretary. The State Project Implementing Unit headed by the executive director is involved in on-ground implementation. Around 290 staff are involved in natural farming-related work; of this, 28–30 persons work for the state-level Project Implementation Unit. The Agricultural Technology Management Agency Scheme implemented in states has been merged with PK3Y work. The year-wise budget allocated for PK3Y was in the range of Rs 18–25 crore during 2018–19 to 2022–23, but the actual expenditure was Rs 5–10 crore only. The total budget allocated for the scheme during 2018–19 to 2022–23 was Rs 107.45 crore, but expenditure in 2018–19 to 2020–21 was Rs 15.70 crore only.

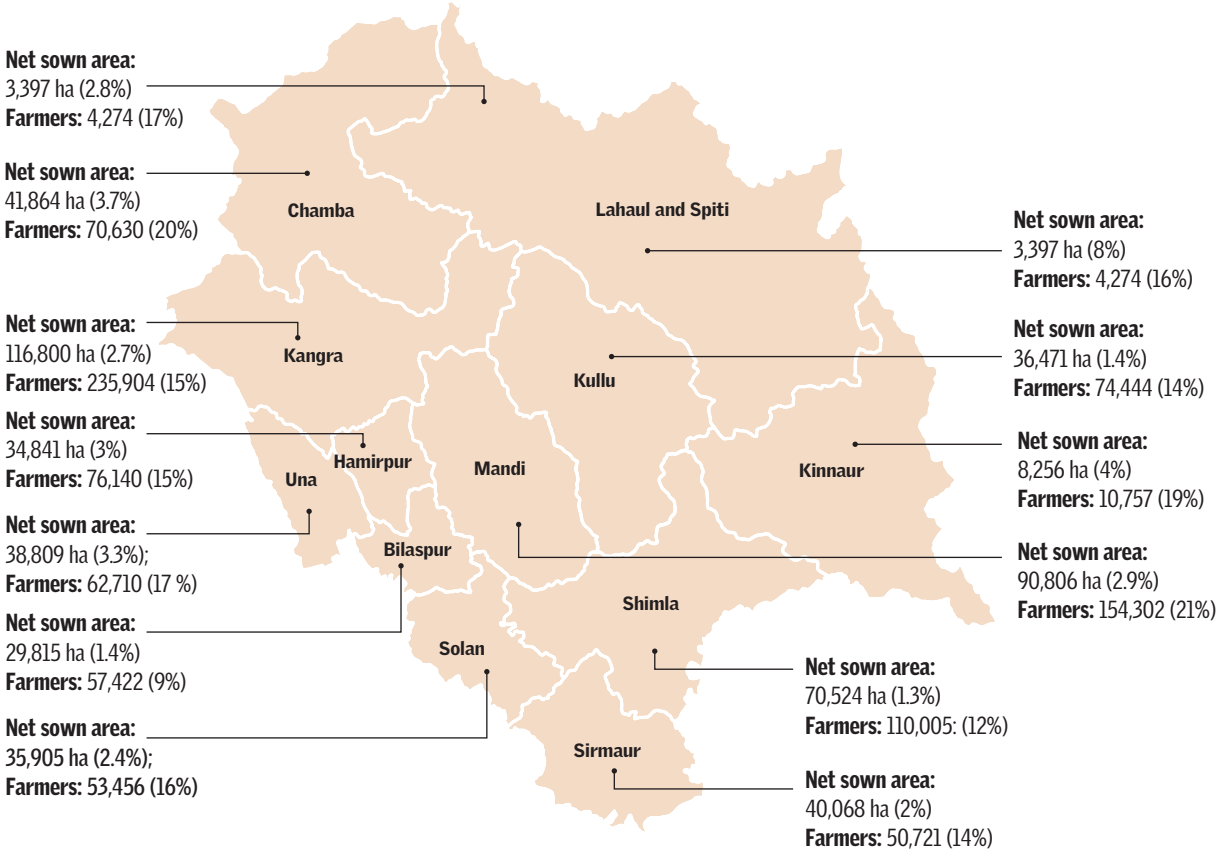
The Subhash Palekar Natural Farming (SPNF) model has been adopted under PK3Y. Assistance is provided under the scheme for capacity building of farmers and agriculture extension officials. Up to Rs 2,250 is provided to farmers for the purchase of drums or tanks; up to Rs 8,000 for cowshed lining; Rs 25,000 for purchasing desi cows; Rs 5,000 to transport them; and assistance of Rs 10,000 for Prakritik Kheti Sansadhan Bhandar—a store that makes available farm inputs to farmers—to one farmer per village. As per the latest available data, assistance has been provided for 1,137 indigenous cows, 57,443 drums, 3,824 cowshed linings and 1,102 sansadhan bhandars. Assistance so far has been provided for 1,137 indigenous cows, 57,443 drums, 3,824 cowshed linings and 1,102 sansadhan bhandars.

Coverage under the scheme

Prakritik Kheti Khushhal Kisan Yojana is an ambitious programme covering all farmers and spread across all panchayats. Almost all gram panchayats of all 12 districts of the state have been covered under PK3Y. As per the state government, 150,012 out of a total of 9.6 lakh farmers—i.e. 16 per cent—and 13,694 hectare out of the net sown area of 5.47 lakh hectare—i.e. 2.5 per cent area—are covered under PK3Y (*see Map 7: District-wise coverage of natural farming under PK3Y*).

Growth during 2018–19 to 2020–21 has been good, with the number of families and area covered under PK3Y increasing significantly. District-wise, 9–21 per cent of farmers have been covered under PK3Y. Area covered under natural farming is in the range of 1.3–4 per cent. Lower coverage area is attributed to the fact that the majority of the farmers are small-scale and marginal farmers. Besides, farmers are advised to start with a small area initially under natural farming and upscale subsequently.

Map 7: District-wise coverage of natural farming under PK3Y



Note: Figures given in bracket indicate percentage of area under SPNF out of net sown area and percentage of farmers under SPNF out of total farmers in the respective districts.

Source: Directorate of Agriculture, Himachal Pradesh

The schemes also have a target to make natural farming models in each gram panchayat and develop 120 model villages to cover all districts of the state.

Farmers' experience: Cost of cultivation reduced but struggling with market issues

Most farmers expressed strong displeasure about the market as they were not able to get fair prices for farm produce. Instead, their farm produce was sold at same price as chemical-based produce. Farmers said that they are cheated and exploited by local traders as they offered very low prices as compared to the market. Decrease in expenditure on inputs was the only saving and was reflected in increased income of farmers.

Natural farming models adopted by farmers have increased crop diversity and had encouraging yield results. Farmers are not limiting themselves to the recommended package of practices under PK3Y and are instead going beyond

Subhash Palekar Natural Farming (SPNF) and applying their own understanding as for example using farmyard manure etc. Expenditure on inputs has decreased but farmers' manual labour has increased manifold. The cost of cultivation for farmers has decreased but they struggle for better prices for their farm produce (see *Photograph 33*).

Photographs 33 a and b: Farmers showing their crops grown using natural farming techniques.

"My income increased from Rs 4,000 per bigha to Rs 27,000 per bigha not due to increase in farm produce price but because of the saving on input expenditure and practising crop diversification."

—Nanakram, farmer, Bilaspur

"My income increased from Rs 4,000 per bigha for wheat to Rs 32,000 per bigha due to multicropping of garlic, peas and radish."

—Sanjay Kumar, farmer, Sundarnagar block, Mandi district

"Activities such as application of natural farming inputs and various farming practices such as raising beds, line sowing and manual weeding demand hard work and consumes a lot of our time. The increase in our income does not take into account the cost of additional labour by our family members."

—Gaganpal, 43-year-old farmer and master trainer, Sayar village, Bilaspur

Initiatives to improve market linkages

The state government recognizes the challenges faced by the farmers, specifically related to market access and fair and remunerative price of farm produce, and has planned to address these concerns. The state Project Implementation Unit of the Agriculture Department has taken a Sustainable Food Systems Platform for Natural Farming (SuSPNF) approach to provide market linkages between the producer, consumer and all intermediaries in a food system. The approach is based

on the principle of transparency, traceability and true cost accounting. Marketing initiatives are rolled out under this are as follows:

New certification mechanism based on self-assessment: The Agriculture Department has designed a novel certified evaluation system for natural farming based on the requirements of small- and medium-holder farmers of the state to eliminate the shortcomings in the conventional third-party evaluation and PGS-India. The state has tried to make a certification methodology that is simple for farmers and implementation agencies. The intention is to also make it scalable with other certification systems operational at the national and international level. This self-assessed certification mechanism—named Certified Evaluation Tool for Agriculture Resource Analysis-Natural Farming (CETARA-NF)—has been made accessible through a web portal since October 2022. It has provision for the following ratings:

- *Antral-PK3* (*): Entry-level rating, which signifies a farmer's initial conversion from chemical to natural farming (score < 30)
- *Sadharan-PK3* (**): This rating signifies that natural farming practices have been adopted by the farmer, with some use of external non-chemical inputs. It is provided after one year of Antral-PK3 (score 30 to <50)
- *Vishisht-PK3* (***): This rating is given to farmers practising natural farming strictly. It is provided after a year of Sadharan-PK3 (score > 50)

For scoring, certification criteria consider parameters such as use of SPNF inputs, practising SPNF techniques, year of starting SPNF, crop rotation followed, land covered under SPNF and use of externally sourced organic inputs. These criteria have been set strictly in line with SPNF (see *Table 9: Criterion for natural-farming certification based on self-declaration*).

Table 9: Criterion for natural farming certification based on self-declaration

SPNF inputs use and practices	Response	Score
• Beejamrit	Yes/No	4/0
• Jeevamrit	Yes/No	4/0
• Ghanjeevamrit	Yes/No	4/0
• Wapsa	Yes/No	4/0
• Mulching	Yes/No	4/0
Year of starting SPNF		
• More than two years	Yes/No	4
• More than one year but less than two years	Yes/No	3
• Less than one year	Yes/No	1

SPNF inputs use and practices	Response	Score
Crop rotation followed (details regarding crop name, area, companion crops, expected production and expected marketable surplus)		
• Kharif season	Yes/No	
• Rabi season	Yes/No	
• Fruit crops with mixed cropping	Yes/No	4/0
• Mixed cropping with leguminous crop	Yes/No	4/0
Indigenous, cross bred or exotic cow	Yes/No	4/2/0
Total land of farmer (in ha):		
Land details (khasra no./GPS coordinates)		
Land under SPNF		
• > 75% of total cultivated land	Yes/No	4
• 50–75% of total cultivated land	Yes/No	2
• < 50% of total cultivated land	Yes/No	1
Training attended:	Yes/No	4
• Date		
• Venue		
• Duration		
• Trainer		
Using self-prepared SPNF inputs	Yes/No	4/2
Concoctions applied		
• Khatti lassi	Yes/No	2/0
• Sapt dhan ankur ark	Yes/No	2/0
• Neemastra	Yes/No	2/0
Other concoctions		
• Agniastra, brahmastra, dashparni ark etc.	Yes/No	2/0
• Above astra's application not needed	Yes/No	4/0
Separate storage facility for SPNF produce	Yes/No	2/0
Externally sourced organic inputs use		
• Use of biofertilizer	Yes/No	-2/0
• Use of botanical extract or biopesticide	Yes/No	-2/0
• Use of organic manure	Yes/No	-2/0
• Use of vermicompost	Yes/No	-2/0
Chemical inputs used		
• Fertilizers (urea etc.)	Yes/No	-5/0
• Fungicide	Yes/No	-5/0
• Insecticide	Yes/No	-5/0
• Herbicide	Yes/No	-5/0
Final score		

Source: Directorate of Agriculture, Himachal Pradesh

A trademark—Natural HP—is granted on the basis of compliance with the standards laid by the State Domestic Production Certified Evaluation Protocol. The State Department has approached the Central government and international organizations such as the International Federation of Organic Agriculture Movements (IFOAM), Institute national de la recherche agronomique (INRAE) and the Food and Agriculture Organization (FAO) for their endorsement.

According to the Department, the CETARA-NF system implemented by the government of Himachal Pradesh is better than the existing certification system as it has provision for self-certification, is easy for farmers, and the review process is based on peer farmers as well as nodal officers at the block level.

"More than 11,000 farmers have submitted the information online and around 6,000 farmers have been certified by the online platform created for this innovative certification."
—Dr Manoj Gupta, Principal Extension Specialist, State Projects Implementing Unit, PK3Y

Promoting exclusive natural farming FPOs: The Agriculture Department plans to create 20 farmer producer organizations (FPOs) in different parts of state, exclusively for natural farming produce on a pilot basis. The aim is to provide end-to-end support and services to farmers practising natural farming, and assist them in technical services, marketing, processing and other aspects of cultivation inputs. The Department has engaged two fellows on a contract basis in each cluster to support this work. The plan is to organize farmers into Farmers Interest Groups (FIGs) and FPOs, and all FPOs further into one state-level federation. The Department plans to further support these FPOs to work towards the growth of cold chain logistics by creating storage structures for natural farming produce for better supply chain management and ensuring remunerative prices to farmers.

One of the FPOs—Chaupal Naturals Farmers Producer Company Ltd in Shimla district—has started working to aggregate, process and market apples in distant markets. Six others—one each in Solan, Sirmaur, Bilaspur and Una districts and two in Mandi district—are expected to start functioning soon in different parts of state. Dr Y.S. Parmar University of Horticulture and Forestry, Nauni, has undertaken a new initiative to support FPOs based in Shimla. It has launched a new pilot programme to facilitate collaboration between the university, FPOs and traders. The university purchases C- and D-grade apples from farmers to make and package apple juice under FPOs and brand and sell the produce through traders. The price farmers receive for these apples has increased from Rs 8–10 per kg to Rs 40–41 per kg as informed by university officials (see *Photographs 34 and 35*).

Photograph 34: Processing of apples at Dr Y.S. Parmar University of Horticulture and Forestry in Nauni

Photograph 35 a and b: Apple juice branded under Chaupal Naturals Farmers Producer Company Ltd

"The initial response to the apple juice packaging and branding complex facilitated by university is very good. It is a win-win situation for farmers, traders and consumers. The apple juice packaging and branding capacity of the facility will be increased next year, and six new apple-based products will be introduced."
—Rajeshwar Singh Chandel, Vice Chancellor, Dr Y.S. Parmar University of Horticulture and Forestry, Nauni

Captive market for natural farming produce: A total of 10 captive outlets are being created to supply natural farming produce in all the districts of the state except for Kinnaur and Lahaul and Spiti (L&S). This will also work as a functional marketing model for 365 days a year and provide transparency to farmers in terms of production value and traceability to consumers. One such outlet has been functional in Shimla since October 2022 (see *Photograph 36*).

Dedicated spaces at APMC markets and/or mandis:Dedicated spaces are being provided in at least one mandi in each district of the state for exclusive marketing

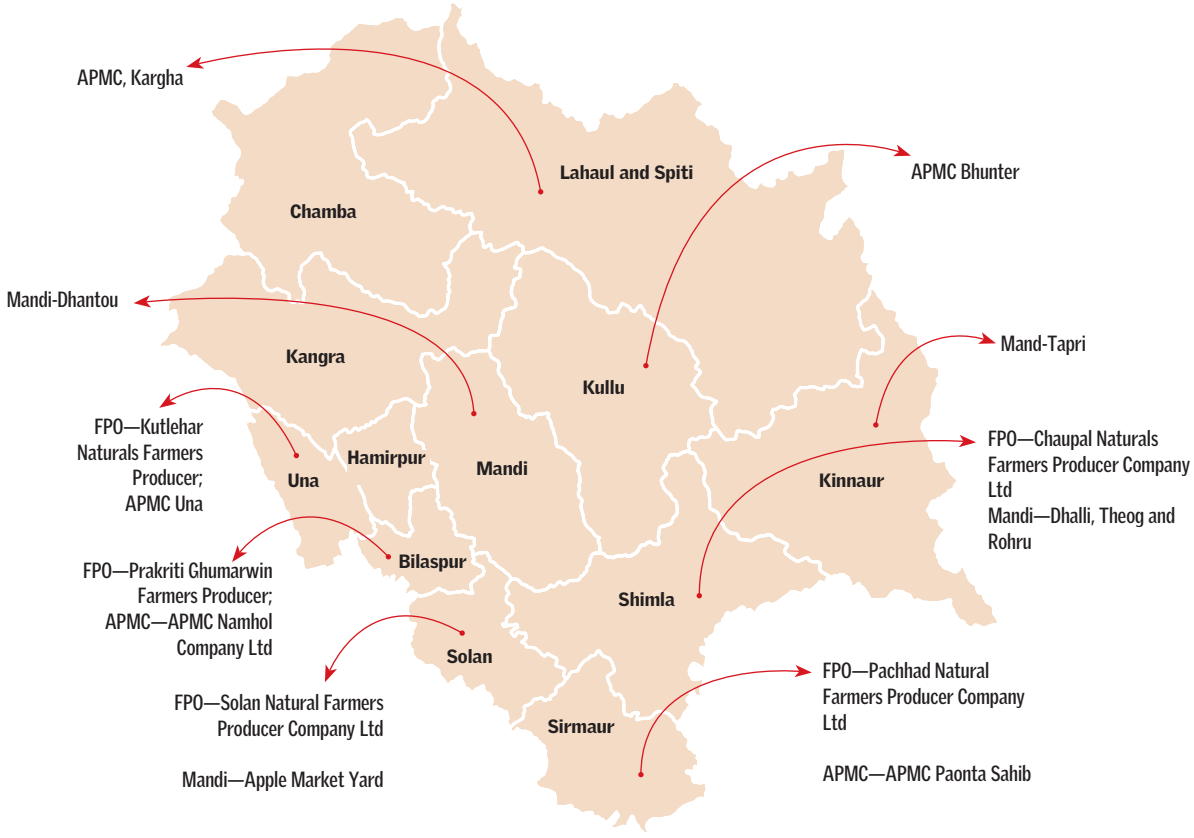
of natural farming produce. Providing logistics for the creation of new agricultural markets (mandis) as well as modern marketing infrastructure support such as refrigerated vans to existing mandis for protecting perishable produce during transportation and storage are also being considered.

Photograph 36: Outlet selling natural farming produce in Shimla in a space dedicated to PK3Y in an Agricultural Produce Market Committee (APMC) market.

Canopies for marketing of natural-farming produce: To create direct linkages with nearby consumers, canopies are provided to natural farmers to help give them a unique identity. So far 40 canopies across all districts in different parts of state have been provided on a pilot basis.

Other initiatives planned to promote natural farming in the state include creation of a Natural Farming Board, establishment of a centre of excellence for natural farming to generate scientific data, creating post-harvest facilities for the vast range of natural farming produce, developing natural farming literature as well as information, education and communication (IEC) material on mass media, and producing seeds of traditional crops (see *Map 8: District-wise market-related initiatives under PK3Y*).

Map 8: District-wise market-related initiatives under PK3Y



Note: Canopies are provided in all districts; captive markets are created in all districts except Kinnaur and Lahaul and Spiti.
Source: Directorate of Agriculture, Himachal Pradesh

Learnings

The PK3Y programme has helped farmers decrease their dependence on the market for inputs and lower the cost of cultivation. The focus of the PK3Y programme, however, is on natural farming—not on organic farming—and within natural farming it focusses on SPNF, which needs to be reconsidered for allowing a diverse chemical-free package of practices.

Other than the inherent challenges of natural farming such as labour intensiveness, subject to yield-related challenges in its initial years and its greater need for awareness and capacity-building, its biggest challenge is providing market access to deliver fair and remunerative prices to farmers.

Market-related initiatives planned by state are in their initial phase. Planning seems to be on track but implementation, execution and their success remain to be seen, especially with regard to self-certification and how FPOs are leveraged.

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India's journey to producing food without chemicals is gaining momentum. In the last few years, governments at the Centre and a few states have been more vocal about the need to promote organic and natural farming. While plans and policies are coming up, it is on-ground implementation that determines their degree of success.

Two key issues need to be well addressed: farmers must be helped in their transition to non-chemical ways of farming, and they must have assured access to markets to sell their produce at good prices. While most ongoing initiatives focus on the transition through capacity-building and incentives, a lot needs to be done to provide better markets through a structured approach.

The key stakeholder groups involved in providing markets are farmer producer organizations, retail corporations and state governments. This compendium of six case studies—two each from three stakeholder groups carefully selected from across the country—aims to highlight how farmers have been successfully connected to consumers. The case studies focus on how organic or natural produce is procured, processed and sold through multiple channels while ensuring better prices and share to farmers, and highlight the progress, practices and challenges. The aim is to help individuals, organizations and governments learn from their journey and take it forward. Access to market must be a driver, not barrier, for India's organic and natural farming movement.

Centre for Science and Environment
41, Tughlakabad Institutional Area, New Delhi 110 062
Phones: 91-11-40616000 Fax: 91-11-29955879
E-mail: cseindia@cseindia.org Website: www.cseindia.org