

# “Zero pesticide” vegetables for the Indian market

In the Indian state of Karnataka, the First Agro farm has more than 40 varieties of vegetables on sale, all of them free of chemical residues. Both hotels and restaurants as well as more and more retailers are appreciating the range of certified products from this young enterprise.

The farm First Agro lies in Talakad, near Mysore in Karnataka, India. The farm is located in Cauvery Cluster, named after the River Cauvery, and is spread over 45 acres of land. Entering the complex, one notices boxes of bright red cherry tomatoes and huge Heirloom tomatoes stacked over each other. The boxes are pasted with a certified ‘zero pesticide’ trademark.

First Agro, which was set up in 2011, grows more than 40 varieties of Indian vegetables, herbs, lettuce and exotics in a mixture of field and greenhouse cultivations. The company has set a high bar for pesticide-free commercial farming in India. First, it has adopted the Codex Maximum Residue Limits (MRLs) for Pesticides and Extraneous Maximum Residue Limits of the World Health Organization (WHO) for its farm production. MRLs for pesticides have been established by Codex to ensure that consumers are not exposed to unsafe levels of hazardous and toxic materials. Every batch of First Agro produce is tested and certified by reputed Food Safety Test laboratories to ensure ongoing compliance with Codex standards. The company’s lab reports are clean – there is not the slightest trace of chemical in the vegetables they produce. Second, their integrated pest and



Photos: First Agro

Photo left: First Agro founder and CEO Naveen MV. Photo right: First Agro director Nameet M discussing vegetable taste and growing practices with five-star hotel chef Jolly.

disease management (IPDM) eliminates 90 per cent of common pest issues in agriculture. Third, their drip irrigation system reduces water consumption by 70 per cent in comparison to conventional agriculture. Also, the plastic and packaging material is biodegradable.

First Agro is based on the initiative of three Indian entrepreneurs with very different backgrounds. Naveen MV, who used to live in the US, can boast 24 years of experience as a business leader in building and scaling business units of leading global organisations in America and the Asia-Pacific region. His brother Nameet M was a pilot in Vancouver, Canada. He spent time with farmers there to learn various techniques of farming. He is also a subject matter expert in olericulture (the science of vegetable growing), hydroponics (soil-less farming) and Integrated Pest Management. With hands-on experience in working with multiple horticulture

growers in Canada over many years, he now works on the ground at Talakad, having relocated from Canada. Their cousin KN Prasad, who joined the two founders, brings with him over 25 years of cross-functional experience in agriculture supply chain and Information Technology across diverse areas like sales & marketing, supply chain management, operations, customer service and finance. Prasad had previously co-owned and managed his family’s farm plantations in the state of Karnataka for more than a decade and has deeper experience in agriculture and supply-chain management.

## ■ From idea to implementation

“We realised that each time we visited India, the price of vegetables had changed,” Naveen recalls. “A thought then occurred to me – instead of complaining, why don’t we do something

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about it? We wanted to be a catalyst," says Naveen, adding that they had started their venture with a social and commercial objective. The idea, which was conceived in 2007–08, took a good two years to implement. During this time, the young entrepreneurs made frequent trips to India. "We noticed at least 6–7 intermediaries in India," says Naveen. "The produce changed many hands. How could people know where their vegetables come from? There was no regulation on pesticide use."

Operations were started in 2010, on untilled, untouched land in Talakad. Production commenced towards the end of 2011. In 2012 and 2013, the company was perfecting methods and growing vegetables. "I tried and failed almost 16 times, and the learning happened," Nameet says.

First, the consumption pattern of people was mapped. On average, an individual consumes 200 grams of vegetables a day. Once they had established the pattern, the entrepreneurs approached retailers. "When we told them that we were India's first commercial producers of zero pesticide vegetables, about 50 per cent of them had no clue," says Naveen. "Some people did have a notion of what we were doing, but there was no clarity." Naveen introduced cherry tomatoes in green, yellow, purple and chocolate colour as a part of the research exercise. He had the idea of children relishing colourful tomatoes. "Most retailers were shocked," says Naveen. "For them, the question was: 'How can tomatoes be in green and

yellow?' It was important to have alignment between them and the suppliers to service the consumers," he adds.

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## ■ Exotic varieties for discerning customers

First Agro's research and development led to the introduction of new vegetables. For instance, flying-saucer shaped Bishop's Crown chilies, which almost went extinct, were tried as a part of the research and development exercise. The chilies soon added to their range of products (see Box). The same holds true for Jalapeños. "Today, First Agro is the only supplier of Jalapeños in India. They are sold at Rs 65 per kg," says Naveen.

Distribution is via two major business units. First, there is retail, where First Agro produce is grown and sold under the brand name of First Agro by all large and mid-size retailers in India. It is on the market as packed produce with 'First Agro' and 'Zero Pesticide' logos. The second business unit is 'Chef-Garden' which caters to institutional customers – global international hotels and fine-dining restaurants. Chef-Garden customers are provided with backward integration from their menu to farm production, and dedicated productions are run for many large hotels and fine-dining restaurants. "In the past, the hotels imported vegetables, paying eight to ten times more. Almost 30 per cent of imported vegetables were wasted in transportation," Naveen says. Today, First Agro supplies these vegetables.

The price of First Agro is about 10 to 40 per cent higher than the conventional market price. "More and more consumers

demand healthy food," says Naveen. "And when the consumers gain, the retailers also gain." If tomatoes are sold at 10 Rupees (Rs) per kilo in market, First Agro will sell them at Rs 20 per kilo. Consumers who are above middle class and who insist on healthy food are eager to buy these products. Price calculation is based on the cost of production. This can be best explained with the price of beans. When the price skyrocketed to Rs 42 in the market, First Agro were selling at Rs 35. "There were people who asked us why we did not raise the prices of vegetables when there was demand," Naveen says. "Our objective was not to keep pushing the prices up and down, but to maintain food safety."

There are times when tomatoes are stocked up, unsold. In this situation, the aim is to make vintage style sun-dried tomatoes and pasta sauces for better shelf life. Since three to four tons of compost is needed every week, some of them are used as feeds in compost bins. "Nothing goes wasted here," says Naveen. The company plans to have a processing unit in place to make pasta sauces and purees, cut vegetables, etc.

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## ■ Sophisticated pest and disease management

First Agro works with a matured integrated pest and disease management regime. For instance, organic companion plants like mint and coriander assist pest management. "Using a combination of neem oil, beneficial insects and microbes, garlic-chili spray, pheromone insect traps and companion plants, we are able to manage about 90 per cent of the common pest issues in agriculture," says Naveen. For every bad insect, there is a beneficial one. For instance, pests such as carrot fly or armyworm hate the presence of garlic and coriander. The major pests of tomatoes are aphids, thrips, spider mites, pin and fruit worms and stink bugs. Here too, there is no need to apply chemicals. Instead, the company uses coloured sticky traps for



Photo: S. Balasubramanian

*Barbados is believed to be where Bishop's Crown chilies originate from.*

aphids and thrips and neem oil to manage pinworms, fruitworms and stink bugs. Spraying the leaves with minced garlic helps against various pests.

In Brinjals (eggplants), Fruit and Shoot Borers (FSBs) represent the greatest threat to the harvest. First Agro uses sex pheromone lures to trap male moths. The pheromones emit the smell of the female insect. The male insects are attracted and fall inside the trap. "Using the pheromone lures, if we are able to trap maximum number of male moths, we can break the cycle of the female moth laying sterilised eggs. Moth population is then controlled," Naveen explains. The company uses *Trichogramma chilonis*, another beneficial insect. *Trichogramma chilonis* controls the population at the stage of egg. Once the eggs are destroyed, the FSB birth cycle is stopped. Neem oil helps to control the adult moths of FSB and thrips effectively.

The Eggplant Fruit and Shoot Borer has been a reason of worry for farmers growing Brinjal. Rampant use of pesticides has played havoc with the lives of common people and farmers in India after the Green Revolution. The negative impacts of pesticides have been well documented, says Kavitha Kuruganti from the Association for Sustainable and Holistic Agriculture. The Association, which comprises 400 organisations, was created in May 2010, as a response to the need felt amongst civil society that as a nation, India was not doing enough to address the issues of rural livelihoods, food and seed sovereignty and security and thereby, sustainable development. Kavitha Kuruganti believes that people's attitudes are changing today. "There is demand for organic produce, and the industry is growing at the retail end," she says. However, there are no numbers to document the percentage of organically produced vegetables in India. For Kuruganti, the way to go is to combine traditional practices of organic farming with modern techniques.

## ■ On-the-job training

When First Agro started production, the biggest challenge was finding human resources. For the supervisory level staff, they recruited from reputed agriculture universities in India and were specifically on the lookout for people who had studied olericulture, entomology or botany as part of their Bsc/MSc degree in agriculture or horticulture. The trainees then underwent on-the-job training for a period of two years under an assistant grower or chef grower. The farm works with documented and Intellectual Property (IP) driven 'Integrated Pest & Disease Management' cultivation methods for Zero Pesticide and non GMO (genetically modified organisms). In the last three years, the company has nurtured more than twelve growers who now have significant experience in zero pesticide methods. For unskilled agriculture labour work, the farm hires part-time labour from neighbouring villages.

A total of 42 people are now working on the farm. There is a need for one to two people per acre depending on what they are growing, and this keeps changing with their research and development and the demand for certain produce. About 40 per cent of the workforce are women. "Empowering rural women is crucial for reducing poverty and making them self-sustainable," says Naveen.

## ■ The vision: covering the entire Indian market ...

The agripreneurs are looking ahead. "Our plan is to set up 1,500 acres of pesticide-free production across 16 locations in North, West and South India over the next five to seven years. Each of our clusters, with 100 to 150 acres, will be named after Indian rivers. The farm will be integrating production, pack house, cold storage and processing centre," says Naveen. Investments to the tune of 20 million US dollars

## First Agro vegetable portfolio

First Agro offer a wide range of indigenous and exotic vegetables:

- 32 varieties of heirloom tomato
- Pink and chocolate Tushita cherry tomatoes
- Orange and pink-coloured tomatoes
- Bird's Eye chili in white and black colour
- Bishop's Crown chili
- Jalapeños chilies
- American Slicer Cucumbers
- Red Baby Mustard
- Red Baby Pokchoy
- Red and white Tatsoiy
- Red Komatsuna
- Wild rocket
- Baby Swiss Chards in various colours
- Orange, chocolate, white and purple-coloured capsicums
- 16 varieties of microgreens
- Salad: a range of Oakleaf, Lollo Rosso, Lollo Bianco, Romaine and Butterhead
- Common Indian vegetables like Brinjals, carrots, radish, etc.

The farm is also a pioneer in growing 'Living Greens' for its Chef-Garden customers. Basically, multiple lettuce, Asia-Greens and herbs are grown as living plants using hydroponics where natural coco-peat is used to grow these small plants. The live plants are shipped to Chef customers and are harvested in the Chef's kitchen for a true 'Farm to Fork' experience.

have been earmarked for this venture. The company has plans to grow salads without soil using solar panels to support the crops. As of October 2013, it has shipped 30 tons of fresh produce every month under the 'First Agro' brand. They are seeking to increase this amount to 40 tons a month in the near future. Although rice and wheat are staple food in India, the nutritional value comes from vegetables. With increasing ailments and food safety issues, First Agro is optimistic that things are posed to change: "We are targeting to be among the top three best-known brands in Fresh Produce over the next ten years as a pan-India brand."