

HARSHINI VAKKALANKA

# Call to NATURE

A few decades ago, technology in the food sector meant higher-yielding crops, and better storage and packaging practices. Today, with the slow food movement, there is a shift in the way we eat: we have moved to fertiliser-free, non-GMO food, to stay healthy through life. The focus is now on using technology to put a plate of organic food efficiently onto our tables, for farm-to-fork to be a reality for the majority.

### How things stand

The overall world trade in organic food is said to be over \$80 billion, according to the 17th edition of *The World of Organic Agriculture*, published by the Research Institute of Organic Agriculture and IFOAM - Organics International in February 2016. India's trade is just over 1% of the global figure. A study by Assocham and TechSci Research put the size of the Indian organic food market at \$0.36 billion in 2014, with the potential to grow by 25% annually.

"We currently produce 53 varieties of paddy. All of them are traditional, indigenous, and some are even known to have medical benefits. We are conducting research on this," says Ramamoorthy Sriram, a farmer based out of Thanjavur in Tamil Nadu.

Sriram has a 40-acre model farm, where he grows several crops, most significantly, a rare variety of black rice and the traditional samba. He was among the first in the region to enrol under the Participatory Guarantee Systems' (PGS) Organic Council as a convener, spearheading the programme there.

### The challenges

Sriram has a successful production model, but faces massive challenges right from the next step in the supply chain, as organic produce cannot be stored in government warehouses that use chemical treatment of storage areas.

Mathew John, founder-director of the Keystone Foundation,

The organic farming sector in India has a supply chain problem, and technology may just be the answer

which works in the Nilgiri Biosphere Reserve with indigenous communities on issues of natural resources and rural development, points out that while non-perishable organic produce like spices and teas have supply infrastructure set up by organisations that export them, the situation isn't as bright for perishable organic produce. "There is nobody to connect the dots for small players, the traditionally organic farmers," he says.

That said, technology is step-

### SHOT IN THE ARM

Data from CB Insights show a boom in 'ag-tech' with over 100 private companies around the world working across sectors like farm management software, predictive data analytics, sensors and drones, to improve practices.



ping up to fill in the gaps. Ajay Tannirkulam, co-founder of Hyperworks Imaging, which works in solving green field problems in the perishable food ecosystem using AI, imaging and innovative product design, says, "A Pune-based startup, Ecozen Solutions, has developed a solar-powered cold storage solution for fresh produce. These can work in even remote places with no access to power. When solutions like this become mainstream, it will cut

down the costs for consumers and suppliers."

At the same time, he says, the consumption in India is still restricted to the well-to-do population, with organic production standing at just a few per cent of the total.

"Everyone must be able to have access to organic food. For that to happen, there needs to be an active storage standard, which is hard for organic food, because unlike traditional warehouses, they can't be sprayed with insecticide. And so the other factors, including cleanliness, temperature, humidity, and air circulation, need to be controlled. The Internet of Things (IoT), which has remained restricted to smartphones in India, needs to expand into these areas. And solar power is set to play a huge role in these technologies."

### Simple solutions

But that is just the beginning. Meera Maran, founder of Chennai-based Terra Earthfood, an organic food shop which places special emphasis on whole, unrefined, gluten-free, organic products, has found that managing inventory for several branches and an online store has been simplified by an unlikely but

easily accessible technology - WhatsApp.

"The closest thing that small organic farmers have to technology right now is the WhatsApp group. It offers a simple platform for farmers and suppliers to resolve their demand and supply needs," she explains.

HR Jayaram, founder of The Green Path sustainable living movement which runs several eco-initiatives in Karnataka, including organic stores, a café, and a restaurant, agrees.

"We rely heavily on the Internet - including social media and portals like Zomato - to promote our store and our restaurant. But we are most prolific over WhatsApp, which we rely on for home delivery of our products. The farmer simply has to reach out to

us through WhatsApp, telling us what's available, and within a few minutes we receive orders and start our delivery."

While third-party certification and laboratory testing for pesticides under the National Programme for Organic Production Certification has proved expensive for most farmers, a free peer-review system set up by PGS-certified farmers is serving as an alternative to provide a transparent record of the production process

to consumers.

### Filling in the gaps

Even with lab tests, the issue is that they only check for specific pesticide residues, and are therefore fallible. But Tannirkulam believes there are innovative solutions on the horizon.

"Technology is developing an answer to this problem through the hyperspectral camera, which uses near infra-red rays to identify whether the produce is

organic and whether it has a pesticide residue. There are also simple paper tests being developed in Europe, which can identify the presence of certain chemicals by simply being wrapped around the product."

While these are expensive, large-scale solutions, the costs of technology are bound to come down, and innovative implementation may help it reach the masses, says Tannirkulam, "It is entirely possible that the hyperspectral camera will be available on cell phones and people will simply be able to look at the produce and gauge its quality and shelf life. The next five years are going to be an exciting time for the organic market."

