

Fruits Of Science

This IIT-educated engineer took to farming for the love of it, and applied science and thought to it. The result: 300% increase in productivity.

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Chennai-grown broccoli, anyone? The idea of growing a cool-weather crop in a hot and arid city seems laughable at best. R Madhavan's farmers might have felt the same way years ago when he encouraged them to grow broccoli on his leased land at Padappai, 40 km from Chennai. But to their surprise, they saw the leafy vegetable growing in abundance on his dry land. It isn't just with broccoli that Madhavan broke such popular farm myths. His farm is full of clusters of tiny tims (small tomatoes), brinjals that are four or five times the size of usual ones, and huge chillies.

If you haven't figured that out already, Madhavan isn't your typical Indian farmer. "More than commercial interests, it was my passion that drove me to agriculture," he says. That does seem appropriate for someone who studied mechanical engineering at IIT-Madras and worked with ONGC for eight years. During those eight years, he juggled between office and farm. That was when his interest in agriculture got a leg-up. Once he quit his job, he travelled to the US and Israel to learn more advanced farm techniques.

He realised that despite having the most arable land in the world, India trailed other countries in productivity. India can produce 180 tonnes of tomatoes per acre, he says, but manages to produce only about 6 tonnes. "People do not understand how science can play a crucial role in agriculture. It's not surprising that almost 70% of our farmers are poor. In Israel and the US, farmers drive BMWs!"

Armed with the tools he learned abroad, Madhavan set about growing his broccoli dreams. "Plants are blind. How will they know if they are in California or in Chennai?" he asks. "As long as we follow suitable agronomical practices and provide the needed fertilisers and soil conditions, they can grow anywhere."

Science Of Farming

Madhavan's successful tryst with farming boils down to five factors he took great care of: soil testing, soil preparation, ascertaining the exact proportion of fertilisers required, figuring out where they need to be used and irrigation. Productivity jumped 300% just because of these factors, he says.

Just testing the soil could make a whole lot of difference, according to him. About 13 years back, Madhavan used to send soil samples to Nebraska. Now, there are facilities available back home, but their significance is surely missed. "Soil quality varies like blood groups in humans. A doctor can't give the same treatment to two people with different diseases just because they come from the same place," he says. Still, people don't give soil testing the importance that it deserves, he says. "If I take soil samples and ask labs to test them, they ask me where the soil has been taken from. If I mention the name, they reply that the soil there has already been tested," says Madhavan.

Madhavan owes his success to soil testing and preparation, fertiliser composition and usage, and irrigation. There are nuances to each only

A soil scientist from a non-profit crop research institute agrees that soil testing can help in increasing productivity, but is seldom used in India. "The soil needs 18 nutrients, and unless you have a testing lab, you can't recommend the required minerals," he says. In fact, C Lakshmanan, a California-based agricultural consultant who mentored Madhavan, identifies this as a major issue plaguing Indian farming. "No amount of financial assistance to farmers in the form of subsidies, loan waivers or raising the minimum support price will increase food production," he points out.

Madhavan says that when farmers forget to stick on to the basics, it can be disastrous. Take soil preparation, for instance. "People ignore it. Often, sub-standard soil is used and crops become vulnerable to pest attacks. As a result, insecticide is sprayed in large quantities converting the produce to poison."

Good Harvest

Though money was not the driving force when he began farming, Madhavan says his venture is more profitable than an ordinary farmer's (read technologically-disinclined farmer). This is despite the fact that the farm at Padappai, which is among the 10 he has leased so far, is more a laboratory for his research ideas than a place for commercial agriculture.

Madhavan's recent experiment with mustard is a case in point. His farm yielded 1,450 kg per acre, which he claims is four times the highest yield so far in India. "If the approach is right, anything can be grown," he says. Despite its commercial viability, Madhavan seems less inclined to make a hardcore business out of his venture.

The former IITian is more eager to pass on the tricks of the trade to other farmers. Demonstration farms such as his can help in educating farmers, he says. He is now designing a course that will educate farmers to increase productivity. For this, Madhavan is working with an NGO, which will provide the required land.

Interestingly, the training won't be accessible merely to farmers. Madhavan's programme is open to entrepreneurs too. He is in talks with entrepreneurs so that they can replicate his model of leasing land and applying the right technology for attaining the best results. Simultaneously, he is in touch with IITians to bring in new farming technologies.

Madhavan is also initiating the concept of e-farming, wherein he interacts with and advises farmers remotely through the Internet. This way, he can sit in Padappai and analyse the soil conditions in a farm in, say, Jamshedpur. He might even advise the farmers there to grow some broccoli.

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