

CULTIVEAT

Smart tech to grow nutritious and safe veggies

Using a sustainable precision farming approach, Cultiveat is able to grow vegetables without pesticides or harmful chemicals



Photo by Cultiveat

JOHN-HANS Oei's maiden foray into agriculture was far from rosy but the challenges he faced did not deter him from farming. Instead, it spurred him to take stock of the challenges, innovate and employ sustainable methods to grow vegetables without harmful pesticides, chemicals and additives. This was how Cultiveat was established in March 2018.

Together with his brother John-Ian, Oei had earlier ventured into conventional vegetable farming, and over 2½ years, experienced the problems that many farmers face. These included poor yields because of unpredictable weather and being at the mercy of middlemen. The toll on the environment as a result of pesticides also weighed heavily on his conscience. "It made us rethink how we wanted to run a business," says Oei.

As he mulled over the various options to move forward in agriculture, he met another entrepreneur, Liang Chan Ning, who shared his philosophy about sustainable farming. The latter's company, Plant Cartridge Sdn Bhd, had come up with a smart and sustainable agriculture system to make commercial and home farming easier. Together, they spent almost two years conducting tests at a trial farm in Goh Tong Jaya. The lessons yielded from this trial farm, which has since been closed, and the earlier experience in operating a conventional farm spurred Oei and his brother to start Cultiveat.

Today Cultiveat has two farms in Kapar, Klang, that has 2.4 acres of greenhouse space in total but yields produce equivalent to that of an eight to 10-acre farm. Cultiveat produces, among others, tomatoes, spinach, pak choy, a selection of lettuce as well as herbs such as coriander and sweet basil.

It uses the cartridge mechanism where seedlings are arranged eight in a tray to prevent crop contamination. The growing medium, a mix of volcanic ash, along with the entire growing system — from the temperature of the greenhouse to the management of the farm — are proprietary to Cultiveat.

Precision farming proponent

Touted to be the first to practise sustainable precision farming in Malaysia, Cultiveat prides itself on the fact that its farms are kind to farmers and the environment. Growing in greenhouses means that pests are kept at bay so the greens are pesticide-free. Stacking the trays to table height not only allows Cultiveat to grow up to 10 times more produce on the same land footprint, but is also easier on the farmers and their backs. Sensors and automated roof panels regulate light and humidity in the farms, and rainwater is collected and channelled through the walls of the



"Technology is allowing us to grow the vegetables that our great-grandparents used to eat, which is pre-industrial, pre-pollution and pre-land degradation."

~ Oei

farm to maintain temperatures ideal for plant growth.

True to the term "precision farming", Cultiveat has calculated how much water each vegetable requires, saving some 90% of water and nutrients compared to conventional farming methods. "For example, we've calculated that green butterhead lettuce requires a total of 400ml of water to grow, and this is fed directly to the plant without any recirculation or backflow," says Oei, who handles operations and strategy while his brother takes charge of sales.

Cultiveat's farm operating system is a consolidated farm management system that uses blockchain technology for traceability and quality control. In addition, it also uses big data and artificial intelligence for production planning and forecasting in order to achieve on-demand, just-in-time growing for customers.

"The irony of technology is that it is enabling us to grow the type of food that perhaps our great-grandparents used to eat, which is pre-industrialisation, pre-pollution and pre-land degradation," says Oei.

Cultiveat's produce bears the myGAP (Malaysian Good Agricultural Practices from the Ministry of Agriculture) and My Food Tag (Ministry of Health) certifications, which audit the quality, health, hygiene and environmental impact of its vegetables and farming.

Oei's efforts in sustainable farming have not gone unnoticed. He was recently made an icon under Selangor Agro Icon, a programme under the Selangor Agro Transformation Plan to recognise 10 farmers

Photo by Cultiveat



Stacking the trays to table height not only allows Cultiveat to grow up to 10 times more produce on the same land footprint, but is also easier on the farmers and their backs

in the state who are proponents of modern farming methods and who have the ability to mentor the younger generation.

Cultiveat's produce is sold to businesses — restaurants, cafes and hotels — and home consumers through its website, which went live just two days after the start of the Movement Control Order (MCO) in March. The response from retail consumers has been encouraging. "A lot more people are thinking about where their vegetables come from, and especially with the pandemic, people are concerned about food safety," Oei says. He adds that Cultiveat's transparency in how it grows its vegetables has been well received, allowing it to build a loyal customer base even after the relaxation of the MCO.

"Many report to us the difference in flavour and freshness that they experience with our veggies. Many young mothers, and even people with illnesses, trust us to provide vegetables that are good for their health. For example, we are regular contributors to Tasputra Perkim, an organisation that provides care and therapy for children with severe mental and physical disabilities. They have told us about the difference in the children's moods and behaviours when eating Cultiveat produce versus other vegetables (without pesticide-free guarantees)," he says.

'Every vegetable turning out how we intend them to'

Feedback from restaurateurs and chefs has been overwhelmingly positive. "They have told us that our produce is just what they're looking for because it's healthier without the pesticides, additives and harmful chemicals," Oei says.

What's more, because the vegetables are delivered as live plants, the flavour and nutrition profiles are at maximum levels, even at the point of arrival at a restaurant or consumer's home. "Since the vegetables are delivered in their life-giving cartridges, the restaurant or home cook gets to harvest it at mealtime. Customers have reported tasty and good-looking vegetables even on the third week, which is not what you usually see with regular leafy vegetables.

"Plus, since it's an urban farm, the travel distance is short, further optimising the so-called shelf life. Our tomatoes, on the other hand, are vine-ripened. While most tomatoes are grown in the highlands (as they thrive in cold weather), Cultiveat has built the first large-scale tomato farm in the lowlands right here (in Kapar)," he says.

What's also unique about Cultiveat's method of farming — and true to its ethos of precision farming — is its success in

every vegetable turning out how it was intended to be. "Using technology, we're able to provide these growing conditions to plants, so they do what nature intended them to, without all the interruptions and obstacles, and to grow into strong, healthy produce," says Oei. And that is how Cultiveat came up with the tagline, "Pure nature makes perfect nutrition".

Educating people on the benefits of sustainable farming

Although a technology-centric farm has higher setup costs than a traditional farm, from the design to the infrastructure, Oei points out that these costs can be brought down with economies of scale. The bigger hurdle for controlled-environment farming, especially on a large scale as in Cultiveat's case, lies in educating the stakeholders.

"This involves educating people on how this method of farming is sustainable, and with dwindling resources and a burgeoning population, this could be the only way to go for the future. It's about educating people on the environmental impact of traditional farming, while simultaneously working on a curriculum to train traditional farmers to convert (to sustainable farming). Then there's the education on the health impact of high levels of pesticides," says Oei.

He concedes that this is a "tricky" aspect because the effects of consuming pesticides are not immediately obvious. "But it's not just about the consumers' own exposure, but also that of the farmers and their families who are exposed to harmful pesticides."

As for consumers, Oei says that buying from Cultiveat or other sustainable farmers "is basically a vote for the work that we do". Although words of encouragement are welcome, ultimately, customers also need to vote with their wallets. "In buying our produce, we can expand and make healthy, safe-to-eat vegetables more readily available to the entire nation. If you care for the environment, then act on it by supporting organisations that work to preserve it." ♦
By Sreerema Banoo