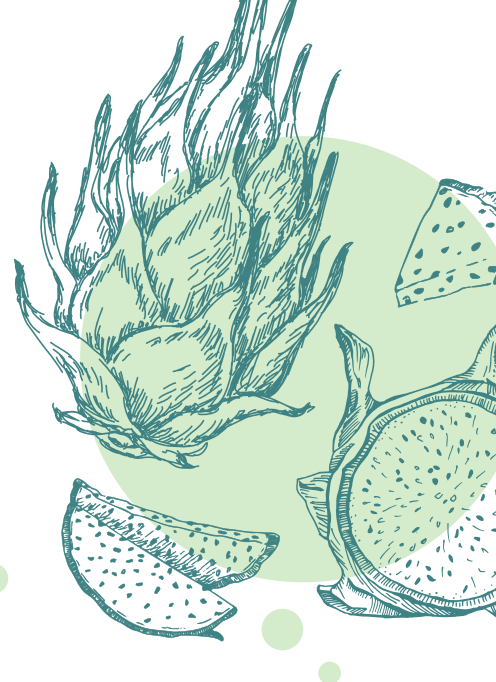




Farmer turns to local innovation to help build soil health



Deteriorating soil health is an issue that increasingly impacts farmers of all scales. As food-crop demand increases, so does the amount of chemical fertiliser required to scale up production. Continuous application of fertiliser can sap the soil of its natural minerals and nutrients, requiring more fertiliser—a vicious cycle. Using organic and sustainable soil conditioners is an important farming practice that can mitigate this. In addition, with the currently limited supply and rising costs of imported agri-inputs due to the long-tail impact of COVID-19 and the ongoing war in Ukraine, the availability of locally produced solutions is vital to the long-term sustainability of Fiji's agriculture sector.



Chemical fertilisers are energy-intensive to produce and reduce soil carbon levels through the breakdown of organic matter. Their application can lead to nitrogen emissions, particularly when overused. Using organic and sustainable soil conditioners is an important farming practice that can mitigate greenhouse gas emissions and increase the climate resilience of agricultural production through improved water retention, better nutrient cycling and reduced erosion.

In 2022, MDF partnered with Baywater Engineering, a local company that developed a liquid compost, to generate greater awareness of the availability and benefits of its organic soil conditioner. Baywater's 'OrganicPlus' is an innovative, local farming solution that uses discarded organic material, such as chicken manure and distillery waste, to produce an environmentally sustainable and affordable soil conditioner for horticultural and root crop farming.

It was the idea of a readily available, fast-absorbing compost solution that first convinced Capt. Jone Dansey to try Baywater Engineering's OrganicPlus liquid compost.

Jone explained, 'The compost process takes a lot of time. From experience, it takes from months up to one year. When I saw the fully organic liquid compost advertised, I thought I better try it. On top of being organic, it was also being advertised as three in one: it's compost, a fungicide and an insecticide.'

The veteran sea captain owns a three-acre commercial farm in Koroqaga, located along the east bank of Fiji's widest river, the Rewa, about an hour's drive from the capital city, Suva.

He turned to farming in late 2019 when the fishing industry took a downturn due to COVID 19. Following months of research and advice, he decided to invest his savings in green pearl guavas and dragon fruit, both high-value agricultural produce with local demand.

"I started with 50 guava plants, which I started harvesting after one year, and 350 dragon fruit, which can take two-three years to mature. Today, I have over 300 green pearl guava trees and 600 dragon fruit cacti vines."



Ninety-nine per cent of our guava is sold through Facebook, while with dragon fruit, 99 per cent is sold to the supermarket. I sell my guava at FJD10 (AUD7) a kilo and dragon fruit at FJD15 (AUD10) a kilo.

Jone Dansey,
Farmer

Going organic

OrganicPlus contains one billion microbes per millilitre. Soil microbes break down organic crop residue and slowly release the nutrients back into the soil. These nutrients are absorbed by plants as food. The OrganicPlus solution retails at FJD25 (AUD17) for a pre-filled 5 litre bottle, and if bought from a dedicated Baywater filling station, it retails at FJD4 (AUD3) per litre. One litre of this concentrate is mixed with water to make a 20-litre solution that can service a quarter acre of land on average.

'I was really interested in this OrganicPlus liquid compost because it provides nutrients directly to the soil. It's like you're buying the microbes that break down the organic matter and put it back into the soil as nutrients, which my plants need.'

The multiple-use case of the product was also appealing to Jone because his area is prone to flooding—as it is located near a large river—as well as spells of extremely dry weather.

'It is also a fully organic fungicide and insecticide. One of the biggest challenges we face here is flooding. When we first planted the guava, it was submerged in the water for one whole day. We lost some, and after the flood, the other problem that arose was fungus. The fungus adapts well in this type of environment, so we must apply fungicides and insecticides,' he explained.

Jone firmly believes that maintaining healthy soil is important for the long-term success of his farm business. Therefore, he invests FJD120 (AUD79) a month on the organic compost instead of applying chemical fungicide and insecticide, which would normally cost him only FJD48 (AUD32) a month.

To initially trial the effectiveness of the liquid compost, he planted one row of guava and one row of dragon fruit and applied OrganicPlus. As a 'control' batch, he also planted another row of each and applied the imported chemical fertiliser, fungicide and insecticide

he traditionally used. As well as increasing resistance to fungus and insects, he saw that the liquid compost also improved the health and growth of the plants.



Jone Dansey,
Farmer



I noticed the difference. The OrganicPlus compost side promoted new shoots, the leaves were big, and the plant looked healthy.

Sustainable—but also more resilient and cost-effective

Farmers are often hesitant to transition to organic fertiliser because of lengthier harvesting cycles and higher costs. However, Jone attests to crops that are more climate resilient, higher yielding and cost effective.

"It can get very dry here at times, and before, when we had one or two days of really hot weather, we have to start watering the plants. After using the compost for seven months, I noticed the plants were doing okay even after a week of dry weather. They are much healthier," he shared.

By investing in organic compost, he is saving money on chemical fertiliser, as the cost of imported fertiliser has more than doubled since he started farming in 2019. In 2019 the average cost of one 50kg bag was FJD68 (AUD45). Today, the same amount of fertiliser can cost up to FJD200 (AUD132) y FJD200 (AUD132).

"Usually, I need to increase the fertiliser when my plants start fruiting. Now I keep it to the same amount, so I am also using less fertiliser in the long term," he added.

According to Jone, this change in practice has also resulted in a 10 per cent increase in his yields. Additionally, over 90 per cent of the fruit produced is 'A-grade', which fetches premium prices on the market.

"Right now, we've been harvesting more than 200kg of guava a week from 100 plants. Just imagine 200kg of fruit; that's good money, but you're also taking a lot of nutrients from the soil! You have to replace it, and this is sustainable."