

CASE STUDY - HARVEST HILL ORCHARD

Jamie and Lisa Dragon fruit whisperers

Property Name: Harvest Hill Orchard

Location: Lambelles Lagoon

Annual Rainfall: 972.7mm

Agro Climatic Region: Tropical North

Property Size: 42 acres

Elevation: 32m

Enterprise Type:
Horticulture

Soils: Kandosol

Harvest Hill Orchard

Since acquiring their property in 2013, Young and Liza have made it their mission to create a farming system that is efficient as possible. In order to achieve this, their primary aim has been working to improve soil health on the property.

Young and Liza's practices are exceptionally unique and innovative. Their impressive innovations have given them a well-rounded enterprise with multiple benefits.

Young and Liza have initiated a series of management practices including:

- Producing their own biochar from on-farm green waste
- Using fish waste to manufacture on-farm bio fertilisers
- Reducing the volume of pesticides used in farm production
- Diversifying crop composition by including crops of Jackfruit and Dragon Fruit.



Key messages

- Biochar production not only helps with soil health and fertility but also helps with removing on-farm green waste while reducing CO2 emissions.
- Bio Fertiliser use and production reduce the reliance on conventional fertilisers. They can be more economical while also negating supply scarcity and price increases.
- Crop selection, focused on reducing groundwater use, along with productivity and economic performance is possible

For more information:

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Biochar and Fish Emulation

Biochar refers to carbon-rich materials (charcoal) produced from the slow pyrolysis (burning in the absence of oxygen) of organic biomass.

Voung and Liza have been producing and applying their own Biochar on farm since 2017. They use organic matter collected from their Jackfruit and mango tree after pruning.

Although the characteristics of biochar can vary widely depending on what it is made from it can have many interesting properties and is said to:

- Reduce leaching of nitrogen into ground water
- Increase cation-exchange capacity (CEC)
- Moderate of soil acidity that is have a liming effect
- Increase water retention
- Increase number of beneficial soil microbes
- maximise the efficacy of applied fertilise including Fish Emulsions

Fish Emulation is a quick-acting organic liquid fertiliser made from fish byproducts. Fish emulsion contains potassium, phosphorus, and nitrogen as well as sulfur, magnesium, and calcium, which are hugely important to plant production and will enable plants to thrive when applied regularly. Voung and Liza produce their own fermented brew from fish waste collected from local processors. They apply the end product to their crop through the fertigation system.



Advantages of Fish Emulation include:

- Improved nutrient availability
- Increased soil microbial density
- Reduced plant disease
- Cost-effective source of fertiliser
- Recycling of waste products

While having the added benefit of improving their soil health Voung and Lisa's Bio Fertiliser program has resulted in increased yields and a significant reduction in disease and insect pressure. Voung and Lisa have reduced their reliance on synthetic fertiliser. This not only helps their wallet but also helps their soil and age of price and product instability is one less component to worry about.

One of the more interesting outcomes of Voung and Liza's management practices is that their fruit now has a longer shelf life since they started to use Biochar and Fish Emulations.



Fun Fact

Voung has been spreading Biochar since 2017 and has found it at depths greater than 30cm in the soil profile.

Jamie with some bio char

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Pesticide reduction

Young and Lisa's commitment to improving their soil health is also paying off by reducing their pesticide use by implementing their unique brand of IMP. Young and Lisa are producing plants that are healthier, they are finding less disease and insect pressure, resulting in a reduction in their use of pesticide inputs. Young and Lisa have been working hard to increase the biodiversity both above and below the ground to create a farm that has minimal insect pressures. In addition, Young and Lisa have adopted an operating philosophy of only using pesticides in the case of extreme invasion.

Not having to constantly spray insecticides is paying off in other areas where Lisa and Jamie are not rooted to a spray rig now how more time to focus their efforts on other aspects of their farm enterprise such as marketing their fresh fruit or refining their Biofert products.

As little as 0.1% of an applied pesticide interacts with its targeted weed or pest. The remainder contaminates the soil, air and water and can have significant impacts throughout the ecosystem. Pesticides can also linger in the soil for years or decades after they are applied, continuing to harm soil health.

www.Biologicaldiversity.Org/campaigns/pesticides-and-soil-health



Lights used at harvest hill to promote pollination and extend growing times



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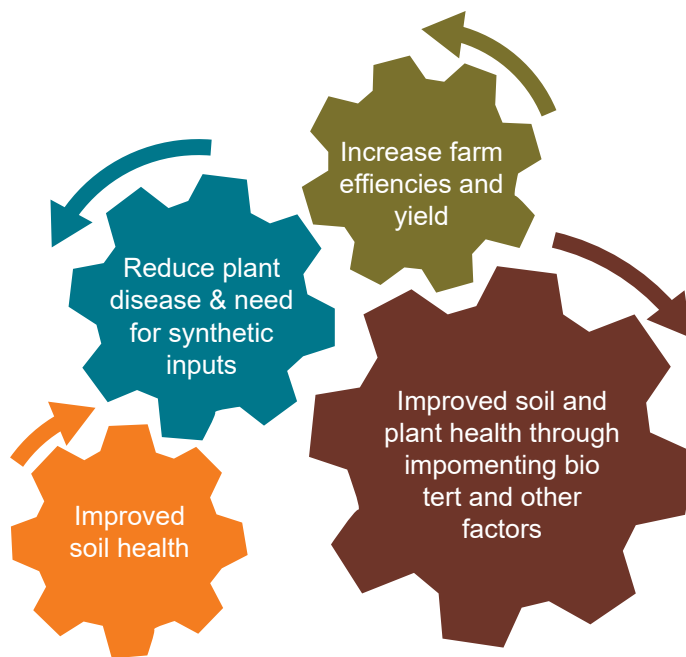
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Soil health feedback gears

This is a fun rural way at looking at how your management techniques affect your soil health and thus your properties profitability. As you “Improve” or turn the large brown gear that represents soil health, it then turns “reduces” the middle blue gear resulting in other improvements i.e. Increased farm yields, farm efficiencies (green) and overall improved soil health (orange).

Diversifying Crop Composition

Young and Lisa’s work has not stopped with soil health, they have worked very hard to diversify the crops they grow switching from predominately Mangos to more of a Dragon Fruit and Jackfruit-dominated enterprise. There are several factors behind making this change. Firstly, Young and Liza wanted to grow crops that are more water-efficient than mangos. They wanted to ensure they had a more diverse revenue stream that would be less susceptible to market instabilities. Lastly, they wanted to build extra biodiversity into their farming enterprise to help with their IMP management.



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