SELECT HARVESTS

CASE STUDY

Carbon Based Fertilizer Sustainable Almond Production

Select Harvests is using a waste product from its almond production to replace expensive chemical fertilisers in its orchards, increasing soil nutrient balance and carbon level and reducing our carbon footprint.

More than 70% of the almond fruit we harvest is hull (the hard outer shell), which is inedible for humans and when stored can become a fire risk. While some of this waste has traditionally been sold as cattle feed, demand for this varies considerably and we wanted to find a more sustainable solution.

Co-Gen Power Plant

In 2018, commissioning was completed on our co-generation plant to power our operations by burning the hull waste. We quickly realised that there could be other benefits as well - a by-product of the co-generation process is considerable quantities of ash, which contains a high percentage of potassium as well as other nutrients.

High Grade Ash

We developed a process to convert the ash into a high-grade carbon based fertiliser that could be used on our almond orchards. Working with our South Australia partners, Rash Engineering, our technical team developed a method to deliver this fertiliser direct to the rootzone of the almond trees.

Research findings have confirmed that the application of soil carbon significantly improve the soil health, which in turn improves the almond quality and yield, reduces the aging process of the crop and suppresses various soil borne disease organisms.

Key benefits include:

(a) Replacement of 25-30% of expensive imported chemical fertilisers with recycled nutrients
(b) Moderates soil structure, through retention of nutrients, soil moisture & temperature
(c) Is reducing erosion
(d) Increases soil carbon level
(e) Eliminates almond waste into land fill
(f) Significant reduction in the carbon footprint of almond production
(g) Improved soil health, root biology & crop health
(h) Improved Select Harvests long term asset value

Our work to date has demonstrated that carbon-based fertiliser is able to be used at scale in our orchards and has the potential to recycle most of our hull waste. At present it has enabled us to significantly improve soil health, root biology and crop health. At the same time, it has been cost-neutral – a real win-win for our business and the environment!

Upul Gunawardena
TECHNICAL OFFICER, CARINA WEST

"We have created a closed loop by using the waste hull ash from the CoGen plant, which is high in potassium, as an important ingredient to our fertiliser program. All natural, recycled and low cost, our fertiliser program is the only project of it's kind in the almond industry, world wide."