

# USING INNOVATIVE TECHNOLOGY TO BUILD A COMPETITIVE GLOBAL BRAND

EXPORT CASE STUDY | JANUARY 2019

Australian growers work in one of the most challenging environments in the world. They have long recognised that to build distinctive and competitive global brands, they have to adapt to difficult climate conditions, be innovative, and make full use of the latest technology.

Costa Group, Australia's leading horticulture company, is an exemplar of how an Australian business has implemented a transformative change program underpinned by digital investment.

Technology has been adopted across every stage of Costa's production – from biotech seed selection, to climate sensors and data analytics. Technology is also used for crop and yield predictions, closed system vertical farming, climate prediction, and the digitised sorting of produce and selection for packaging.

Costa Group grows, packs, markets and distributes five core fresh produce categories: berries, mushrooms, glasshouse-grown tomatoes, citrus and avocados.

'Finding more sustainable ways to make fresh, healthy food available for everyone is one of the most critical issues of our times,' says Costa Group CEO Harry Debney. 'Costa has a part to play here, for our portfolio consists solely of fresh healthy produce.'

## A growing international presence

Costa's R&D program is fundamentally important to the company's long-term growth strategy. The program includes varietal development and differentiation, agronomic practices and farming productivity and innovation.



New plants in Costa's greenhouse.

**'Water is obviously a key input for horticulture so we have focused on water security. Our glasshouse-grown tomatoes, for example, use approximately 49 litres of water to produce one kilogram of crop, while out in the field around 216 litres of water are needed to produce the same crop. That's a huge difference.'**

Harry Debney, CEO, Costa Group

Costa's operations are spread across Australia, including 4,500 planned hectares of farmland, 30 hectares of tomato glasshouse facilities (40 hectares from mid-2020) at Guyra in northern New South Wales, and seven mushroom-growing facilities across five states of Australia.

These operations are supplemented by a diverse network of third-party growers – Costa works with partners, both domestically and internationally.

'An important part of Costa's success is applying its business model and agronomic practices to growing environments outside Australia,' says Debney. International operations now include majority-owned joint ventures in China and Morocco.



Australian Government

Australian Trade and Investment Commission



'We are now into our third year of expansion in China,' Debney notes. 'Costa has been a world leader in blueberry varietal improvement. We have been breeding blueberry varieties for over 30 years, growing them both in Australia and internationally, as well as licensing them through the Americas.'

'China is already the largest market for fruit in the world – and growing,' he says. 'We currently have three substrate berry farms in Yunnan Province. In Morocco, where we have been in operation for over a decade and have six blueberry farms, our premium produce is perfectly positioned to supply blueberries to the nearby UK and European markets.'

## **Water assets and proactive risk management**

Over the past 10 years, Costa has put significant investment into water assets and technology.

'Water is obviously a key input for horticulture,' comments Debney, 'so we have focused on water security – water capture, water recycling and, particularly, water efficiency.'

The results have been nothing short of stunning, he says. 'Our glasshouse-grown tomatoes, for example, use approximately 49 litres of water to produce one kilogram of crop, while out in the field around 216 litres of water are needed to produce the same crop. That's a huge difference.'

Debney explains that Costa's vertically integrated business model is designed to manage agricultural risk. 'We practise proactive risk management in a number of ways, including the diversification of our categories and geographic spread. We also grow plants in protective cropping environments, and we aim for produce categories that have 52-week supply windows.'

## **Farm sensors capture data**

Technology is being used by Costa as part of its operations in a variety of ways. At many of its berry-growing locations, the company is piloting sensors from Australian agtech firm, The Yield, where Debney acts as Chairman.

Deployed to different micro-climates within a field, these sensors capture information about plant conditions which is converted into seven-day forecasts, using artificial intelligence and predictive models.

The Yield's technology combines hardware, data analytics and apps, to help increase yield, reduce waste, mitigate the risk and cost associated with bad weather, and aid environmental sustainability.

'Having the right information is key because it helps a grower make decisions,' says Debney. 'With The Yield system, we get real-time information about photosynthetic active radiation, barometric pressure, relative humidity, total solar radiation, rainfall, air temperature, wind speed and direction, leaf wetness, soil moisture and soil temperature.'

## **Robotics and mechanical harvesting**

Because fresh fruit and vegetables are difficult to harvest mechanically, they are labour intensive to produce.

'In the future we expect that robotics will be used to harvest horticultural crops, but that technology is still some way off,' says Debney. 'The only robotics we use today are in the packing of produce.'

'Nevertheless, we know that robotics will have an important role to play in coming years, so we're putting a lot of energy into this.'

'For example, we expect that eventually robotics will be able to help us to harvest more efficiently, to improve our production yield, and to reduce product and supply chain waste.'

'Applying the right technology to your business is crucial for success today,' he adds.

## **Sorting and packing technology**

Costa has invested in a technology that covers the final phase of its production line – sorting and packing – and is particularly used for citrus and berry crops. Utilising the latest optics and software, images are taken of each piece of fruit at high speed and in high resolution, and the fruit is accurately sorted by defect into grades.

'This technology has been adapted by us to suit our needs,' explains Debney. 'It's not widely used elsewhere, and could be considered state-of-the-art.' He adds that the images have proved to be highly accurate with respect to colour and blemish, which is important for export markets, particularly Japan.

## About Austrade

The Australian Trade and Investment Commission – Austrade – contributes to Australia's economic prosperity by helping Australian businesses, education institutions, tourism operators, governments and citizens as they:

- › develop international markets
- › win productive foreign direct investment
- › promote international education
- › strengthen Australia's tourism industry
- › seek consular and passport services.

### Disclaimer

Whereas every effort has been made to ensure the information given in this document is accurate, the Australian Trade and Investment Commission does not provide warranty or accept liability for any loss arising from reliance on such information.

©Commonwealth of Australia 2019