



Sustainability: Trends in the Fresh Produce Industry & ROI



PMA Fresh Summit 2011
Student Report

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Executive Summary

During the PMA Fresh Summit 2011 in Atlanta, five businesses were interviewed to gain an insight into the major trends in the fresh produce industry with respect to sustainability. In addition, two growers from Chinchilla, Queensland were also interviewed about production trends for sustainability at the farm level. The purpose of this report is to identify these and highlight the implementation of sustainable business practices in the fresh produce industry, and how such practices can offer an attractive return on investment.

The first section of the report provides a broad overview of sustainability, why it is important for the industry, the environment, and for consumers. The basis of sustainability is the threat of global warming and the anthropogenic contributions towards it. Consumers are very well aware of the global warming situation and have the desire to purchase products which are environmentally friendly so as to reduce the effects of anthropogenic contribution.

Production in Australia, for the purposes of this report, is focused on two rockmelon/watermelon growers located in Chinchilla, Mr Ian Beard and Mr Roger Boshammer. Chinchilla is known to be the melon capital of Australia and is quite dry, so efficiency in water use is extremely important in that area. This can be done in two ways; dryland cropping and/or trickle irrigation. Another sustainable practice adopted by these growers is the practice of biological farming which aims at reducing the use of chemicals.

Sustainable food production outside Australia focuses on five businesses (Chiquita, Gills Onions, Dorot Farm, Conwed, and AgraQuest). Representatives from these firms were interviewed at PMA Fresh Summit. Evaluation of these businesses identified three main



trends for sustainable food production: waste management, ‘environmentally friendly’ packaging, and the use of biopesticides.

It was discovered that sustainable practices are difficult to evaluate in terms of return on investment (ROI). However, the flow-on effects of undertaking sustainable practices contribute to cost savings and therefore, have a positive effect on the company’s profitability. These cost savings come about due to increased efficiencies in water, energy and other inputs.

The final section of the report outlines our experiences from attending PMA Fresh Summit and participating in the PMA-FIT program. We thoroughly enjoyed the opportunity and would recommend it to our friends and future fresh produce professionals. We would like to thank everybody who made the experience possible. It was brilliant.



Sustainability: Trends in the Fresh Produce Industry & ROI

Acceptance that global warming is happening has meant that the world has now become aware of the impact that human activity has on the earth and its ecosystems. As we have become more educated about the environment and the anthropogenic contributions to global warming, the need to become more environmentally sustainable has reached the forefront of consumer behaviour, legislation and business agenda. For example the implementation of sustainable practices has been driven by the consumer expectation for businesses to address their corporate social responsibility (Becker-Olsen & Hill, 2005), which incorporates the idea of being ‘environmentally friendly’.

The desire to be ‘environmentally friendly’ has become a trend for some consumers and through legislation, will eventually become mandatory for all industries including agriculture. Although at this stage, in Australia, agriculture has been left out of any proposed carbon legislation, other legislation such as tree clearing laws, are already in place. In Australia, it is very clear that there are a growing number of people who are concerned about environmental issues and sustainability, as the Greens Party has gained the largest number of seats in Federal Parliament than ever before.

As demonstrated by majority of businesses exhibiting at the PMA Fresh Summit, sustainability is becoming a part of every fresh produce business, with sustainability being built into their budget, strategic plan, daily operations and management personnel. In the coming years, the sustainability concept will continue to grow internally within businesses, and externally in the industry, government, and the minds of the consumer.



Sustainable Production Practices in Australia

Two rockmelon and watermelon farmers from Chinchilla, in southeast Queensland, were interviewed about their sustainability practices when growing their melons. These farmers were Mr Ian Beard of Redford, and Mr Roger Boshammer of Glenoch Farms Melon and Beef. Chinchilla, like much of Queensland, is known to experience extreme dry seasons and extreme wet, however for most of the last ten years it has been dry. This has prompted many growers, including Mr Beard and Mr Boshammer to change the way in which they grow and irrigate their crops by either increasing their efficiency of water or decreasing its use thereby, becoming more water sustainable.

Dryland Crop Production

Some varieties of watermelons and pumpkins can be grown as a dryland crop where often no water is made available to the plants once established and water is only available from rainfall. The plant varieties used for this style of production are extremely hardy and are capable of growing without the availability of irrigation water which makes them well suited to the dry Australian climate.

Trickle Irrigation Production

Changing irrigation practices from sprinkler irrigation to a trickle system has meant that approximately half the water required to grow a melon crop for Mr Boshammer and Mr Beard. Also, the water use becomes more efficient as it is delivered directly to the roots of the plant instead of on top of it, decreasing runoff and increasing efficiency of use (DPI NSW, 2006). This system means that not as much water is required for the farms' dams and



therefore, can be sent further downstream via Charley's Creek, which runs through both Mr Boshammer and Mr Beard's properties, to Chinchilla where it meets the Condamine River. Thereby, benefitting the ecosystems of Charley's Creek and the Condamine River because not as much water is taken out for farming. Trickle tape is also used with the dryland crops, just in case enough rain falls to be able to irrigate and therefore, increase crop yields.

Another use for trickle irrigation is in fertigation where fertilisers and nutrients can be delivered directly to the roots of the plants using the trickle irrigation infrastructure. As a result the fertiliser and nutrients are used more efficiently and runoff or over application is minimised (DPI NSW, 2006). Mr Boshammer often uses this method to fertilise his melons. While some growers in Australia still sprinkler irrigate, trickle and above ground drip irrigation have become the most widely used irrigation practices in the Australian agricultural industry (ABS, 2011).

Biological and Organic Farming Practices

Both Mr Boshammer and Mr Beard have been decreasing their use of chemicals on their crops through the practice of biological farming. This involves practices similar to organic farming however, when absolutely necessary, chemicals can be used. Organic farming was considered by both farmers however, it would require all of their business operations to become organic. Mr Beard has a small cattle operation, some sheep, and he breeds sheep trial dogs. Mr Boshammer has a Black Angus Stud, and an Australian Stock Horse Stud. Becoming fully organic would not benefit the other aspects of their businesses and therefore, they chose biological farming instead of organic; to increase soil fertility, decrease chemical runoff, and increase the general health of their soils. Both Mr Beard and



Mr Boshammer have found that their adoption of biological farming has benefitted their soil health, their crop yields and both farmers stated that they have had less issues with disease after they began using nutrients to boost soil health instead of chemicals to patch problems.

Biological and Organic farming methods have been trends in production which have come about due to the need to be more sustainable in food production, and the awareness that conventional practices have been harming soils, waterways and ecosystems.

Production Outside Australia

During the PMA Fresh Summit 2011, representatives from five businesses were interviewed about their practices and how they contribute to environmental sustainability. These businesses were; Chiquita, Gills Onions, Dorot Farm, Conwed, and AgraQuest. From these interviews various trends related to sustainability within the industry were identified, and are explained further below. It was also discovered that such practices had not only environmental benefits, but attributed to significant financial gains. This discovery was backed by the discussion held in the Sustainability Workshop held during the PMA Fresh Summit, whereby guest speakers explained that their businesses had generated significant cost reductions from the introduction of sustainable practices; for example through the reduction of input costs. In particular the insight from the Marks and Spencer representative Mr Hugh Mowat, highlighted profound financial benefits from introducing sustainable practices within the Marks and Spencer supermarkets.

Waste Management

During the PMA Fresh Summit, the trend of increased waste management was identified



throughout the fresh produce industry however the most notable of these was Chiquita and Gills Onions. Both businesses have implemented various waste management solutions, with the most significant practice involving waste to energy systems.

Chiquita is an American based company involved in growing, packing, processing, distribution and marketing of fresh produce. Its core products are bananas, avocados and pineapples but the company has also diversified into juices, fresh cut fruit and vegetables, and fresh cut salads. It was identified that the main driver for sustainable practices is the growing demands of consumers and retailers for sustainably produced foods. Chiquita has implemented various practices which reduce and/or maximise waste and improve internal efficiencies. These practices include;

- Utilisation of banana waste product for;
 - Compost
 - Banana puree
 - Cattle feed (gifted to local farmers)
- Recycle plastic used in banana operations for uses such as;
 - Protecting banana plants as they grow
 - Water pipes
 - Buckets
 - Building materials
 - Paving stones
 - Building bridges

The composting of banana waste provides added nutrients to the soil, helps prevent soil erosion from heavy tropical rains, and helps maintain soil moisture in the dry season. Banana puree from 'unattractive' fruit maximises production and reduces waste, while the



gifting of some spoiled bananas to farmers for cattle feed benefits the local community. Additionally, Chiquita recycles up to 3,000 tonnes of plastic annually. Not only does this reduce the large amount of plastic going into landfill, but it assists in the productivity of the banana plants, as it is used to protect the bananas from insects, disease, and the sun. Plastic used for the other listed purposes also reduces costs, and benefits local communities. Overall, by implementing waste management solutions Chiquita has been able to reduce costs (i.e. through the reuse of waste for purposes such as compost for fertiliser), whilst improving the environmental footprint of the business.

The pinnacle of Chiquita's waste management solutions however, is the more recent bio-digester system at their Mundimar facility in Costa Rica. This system has been designed to harness the energy from discarded fruit material for use in the facility. The system provides a sustainable energy source for 100% of the Mundimar facility, and reduces emissions through methane avoidance and elimination of fossil fuel usage. In addition to this it also provides the co-benefit of a nutrient rich fertiliser by-product, which is distributed to local farmers. Overall this project benefits the Chiquita company through reduced energy costs and a beneficial by-product, as well as the planet through reduced emissions.

Gills Onions was also found to have implemented a similar system, whereby onion waste from their processing facility is used to supply 100% of their energy needs at the Oxnard facility. This has translated into energy savings for Gills Onions equivalent to the base wattage needed to power 460 homes.

Overall, it is highlighted that waste solutions not only reduce the amount of product wasted during production, but also offers additional co-benefits which involve being



environmentally sustainable and various financial benefits.

‘Environmentally Friendly’ Packaging Solutions

Many types of packaging are used throughout the fresh produce industry to successfully distribute and differentiate products. Both Conwed Global Netting Solutions and Dorot Farm were interviewed to find how their commitment to sustainability fits with the trend of ‘environmentally friendly’ packaging.

Conwed provides netting solutions to those in the produce industry wanting to reduce waste, cut carbon emissions, and improve sustainability. Conwed is the first netting solutions company to achieve full carbon neutral status, and offers products to customers that boast a reduction in waste and weight without sacrificing strength, stability or performance. Examples of such products include; a fully biodegradable erosion-control netting and the world’s first 100% PVC-free case liner. Therefore, by using ‘environmentally friendly’ packaging offered by Conwed, customers can claim further commitment to environmental sustainability.

An example of using ‘environmentally friendly’ packaging to demonstrate commitment to environmental sustainability was found through Dorot Farm. Dorot Farm predominantly produces carrots, which requires various styles of packaging. It had on show, at the PMA Fresh Summit, a new style of packaging for its carrots which uses 100% oxo-biodegradable film bags. The company uses this development to claim the packaging is ‘environmentally friendly’. The use of this bag demonstrates Dorot Farm’s commitment to environmental sustainability through the form of packaging, which aims to appeal to



customers and end consumers.

Biopesticides in Production

According to AgraQuest, consumers are demanding diverse, healthy foods with minimal pesticide residues. Additionally, producers must also meet the increasing demand for fresh produce as a result of a rising global population (expected to exceed 9 billion by the year 2050), (FAO 2009), whilst contending with increased input costs and regulatory requirements.

AgraQuest has developed a range of biopesticides which claim to assist growers to address these issues, by reducing residues, improving grower yields and improving grower profitability. Biopesticides can be used as an alternative or in combination with synthetic conventional products, and can offer growers these benefits which would otherwise be difficult to achieve (AgraQuest representative, pers. Comm 2011).

Figure 1: AgraQuest 'Serenade' benefits for Potato Crops

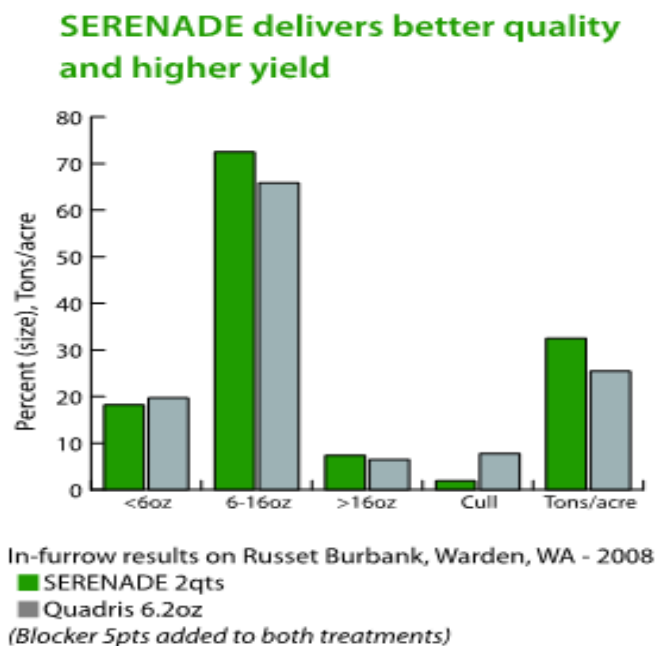


Figure 1 demonstrates how one of AgraQuest's products can result in better quality and higher yield.

Furthermore, due to the natural composition of the biopesticides, AgraQuest products offer growers these benefits whilst using an 'environmentally friendly' product.

Evaluation of Trends & ROI

The concept of sustainability is based on the principle that a business should strive to meet the needs of the present without compromising the needs of future generations (Lehane 2001). This concept therefore is heavily related to the use of natural resources, and the consideration of the broader health of the environment. Lehane (2001) also explains how farmers will only adopt sustainable systems if they can maintain a living for themselves, thus suggesting that sustainable practices must also consider economic and social issues.

Therefore, there are needs of both the environment and humans which must be addressed to achieve sustainability.

In order for the environment to remain sustainable it must be managed in a way which protects its production capabilities for future generations. Consumer 'needs' can be associated with product attributes such as; health, safety, access and affordability, and in some cases various ethical attributes which includes environmental sustainability. These needs must be met for businesses to remain sustainable and profitable. Therefore, human needs incorporate both consumer and producer needs.

It must also be noted that the previously mentioned expected increase in global



population by 2050 will significantly influence the fresh produce industry and the wider food production industry in general, with a predicted 70% increase in demand for food and fibre products (FAO 2009). Producers will have to increasingly produce products which are low cost and environmentally friendly, whilst contending with increasing cost of inputs and regulatory requirements. In order to manage this, sustainability practices can be implemented (such as those identified in this report). It is recognised that these trends help to reduce costs, improve brand image, and reduce the environmental impact of business practices.

The return on investment for sustainability has been explained as being difficult to directly measure, however the flow on effects from the investment are showing great promise. Much of sustainability is about efficiencies, and becoming more efficient creates reductions in costs. However, as with some of the waste management practices such as Chiquita's Mundimar facility, there is some serious capital outlay before a reduction in costs can be found. This is where it becomes difficult to measure the return on investment as the facility does not actually 'make money' for the company, yet it reduces costs that would otherwise have to be paid. The issue with waste management facilities, such as Chiquita's and Gill Onions' is that they require a large capital outlay which may be very difficult for smaller companies. Chiquita and Gills Onions are able to build such facilities due to their company size and availability of capital funding.

Another flow on effect is again with reference to Chiquita. The company has found that its sustainability practices have become a differentiating factor for the company's products, and sales have increased both in volume and dollar value. This further recognises that there is definitely some financial benefit that can be gained from sustainability practices,



if they are implemented correctly. The reason that Chiquita's sales have been affected is the consumer desire to purchase environmentally friendly products. Sustainability and corporate social responsibility, are two of the key factors which impact on consumer purchasing behaviour.

Overall, by implementing sustainable practices businesses can address the needs of consumers and the environment, whilst maintaining an environmentally and financially sustainable business.

The Fresh Summit Experience

Fresh Summit was very much a 'wow' experience for both of us. It was a display of the industry in a scale that we have not come across in Australia. In some ways, it was like looking into the future as some of the products we saw, if successful in America, are likely to end up in Australia in the coming years.

The student workshops that we attended we of very good value to us and we gained a lot of knowledge about, getting a job in fresh produce, the different types of jobs available, and how to conduct ourselves in an interview and when introducing other people. The most important part of the experience however, was being with our mentors and networking with people from a variety of countries and Australia.

During our time at Fresh Summit we were able to meet many people with whom we could potentially get a job, or an internship. These contacts have already proven useful in getting an internship in exporting for Belinda in Sydney, while Allana had a job interview at Fresh Summit with an Australian fresh produce company.



Our experience at PMA Fresh Summit 2011 was one that we are very grateful for and we were extremely pleased that we attended. It has provided us with invaluable contacts, and information which will help us in the future, in our careers as fresh produce professionals. We will recommend the experience to anybody that is interested in a career in fresh produce. It is a once in a lifetime opportunity.

We would both like to thank the following people whose contributions were vital to our experience;

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