

Value Adding and Sustainability after the farm gate



A report for

by Trent De Paoli

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Scholar Contact Details

Trent De Paoli
Austchilli Pty Ltd
4496 Goodwood Rd
Bundaberg, Queensland, 4670
Australia

Phone: +61 7 41 503 300
Fax: +61 7 41 503 399
Email: trent@austchilli.com.au

In submitting this report, the Scholar has agreed to Nuffield Australia publishing this material in its edited form.

NUFFIELD AUSTRALIA Contact Details

Nuffield Australia
Telephone: (03) 54800755
Facsimile: (03) 54800233
Mobile: 0412696076
Email: enquiries@nuffield.com.au
586 Moama NSW 2731

Executive Summary

Value Adding and Sustainability are two very hot topics globally. Through travel to New Zealand, Canada, North America, Mexico, Brazil, United Kingdom, Indonesia, Spain, Italy and the United Arab Emirates, the following recommendations should be considered in the future of Australian Horticultural Production.

- Winning value adding companies in the future will need to thrive on turbulence
- Global markets are chaotic, competitive and linked
- Success will be found in white space
- Value adding and sustainability is intrinsically linked relative to economic, environmental and social sustainability
- Horticultural production must be driven by the demand chain, not the supply chain
- Vertical Integration may greatly enhance financial performance and risk aversion
- We are responsible for inspiring a fresh revolution
- Innovation is paramount in a high cost production country
- Government support to value adding is needed
- Food is fashion – we are in for some exciting and opportunistic times
- Balancing sustainability will become a major influencing factor and critical to long term success
- We must continually change and adapt

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Foreword



Figure 1: Trent De Paoli in Chilli Fields, Bundaberg

Value Adding and Sustainability are terminologies often used in today's agribusiness landscape. Both terminologies are becoming more frequently used in literature and by agribusiness globally. Population forecasters predict global population to exceed 9 billion people by 2050 (United Nations, 2015) How important are those factors to the future of global agribusiness and meeting food consumption? My hunger to research these factors lead me to travel the world in search of the answers.

My passion for agribusiness is 3rd generational with forefathers producing crops such as tobacco, sugar cane, intensive horticulture and value added products.

Our family agribusiness – Austchilli, is a vertically integrated agribusiness based in Bundaberg, Queensland. The business encompasses three main channels of production.

- Producing over 80% of Australia's fresh chilli consumption with direct supply to Australian retailers

- Manufacturing a range of shelf stable aseptic chilli, vegetable, herb and fruit purees as ingredients for food manufacturers globally
- Production of a branded retail product called Avofresh using novel technology of high pressure processing

My passion for innovation and change is always at the front of my mind. As quoted by Charles Darwin, “It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one most adaptable to change”. My Nuffield Scholarship allowed me to travel for 16 weeks travelling to New Zealand, Canada, North America, Mexico, Brazil, United Kingdom, Indonesia, Spain, Italy and the United Arab Emirates in search of what the future holds for value adding and sustainability and quenching my thirst for anticipating change.

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- The many incredible people on this journey that have shared, encouraged, listened and inspired me through my travels, many of them who I now call friends.
- The Austchilli Team who have picked up the slack while I have been travelling and to my parents who have encouraged me to constantly search for smarter and better.
- Lastly, the most important in the world to me, my incredible wife Sue and our amazing children, Iliana and Caleb. Without their support, understanding and encouragement, this experience would not have been possible.

Abbreviations

ABARES	A research bureau within Department of Agriculture (Australia)	
Ac	Acres	
AD	Anaerobic Digester	
AUSVEG	National Peak Industry Body for Vegetable and Potato Growers	
CAP	Common Agricultural Policy	
CEO	Chief Executive Officer	
GDP	Gross Domestic Product	GVP Gross Value of Production
Ha	Hectares	
HAL	Horticulture Australia Limited	
HPP	High Pressure Processing	
MW	Megawatt	
NVL	National Vegetable Levy	
PEF	Pulse Electric Field	
PMA	Produce Marketing Association	
QR	Quick Response Codes	
R&D	Research and Development	
UHT	Ultra Heat Treatment	
UK	United Kingdom	
US	United States of America	
US\$	United States Dollars	
WTO	World Trade Organisation	

Objectives

- To visit and investigate agribusinesses that are value adding throughout the world.
- To identify the characteristics and drivers that define their existence.
- To form a view on the future of horticultural value adding and sustainability and what the future may hold.

Chapter 1: Introduction

In 2012-13, \$3.5 billion was injected into the Australian economy as the gross value of the vegetable growing industry. The gross value of production (GVP) has grown at an average of 2.5% yearly since the 1990s. Since the early 1990s, the GVP has increased at an annual average rate of 1.6% but stagnated since 2005-06 (ABARES, 2014)

The average income from vegetable farms has fluctuated over this period with an estimated average farm cash income of \$119,000 per National Vegetable Levy (NVL) paying farm in 2012-13. This is the lowest recorded since surveying began with farms in 2005-06. The average farm income has been slowly declining. To compensate, many farms have increased scale, adopted new technologies and management practices while changing the mix of on farm income to spread risk (Horticultural fact sheet, 2012)

The food and beverage industry in Australia accounts for 25,662 businesses while the fresh produce industry makes up 18,060 businesses accounting for 70% of the nation's value added industry. The fresh produce industry in 2011-12 generated \$5.5 billion of value adding revenue and has major influence to Australia's Gross Domestic Product (GDP) (Australian Food and Grocery Council: STATE OF THE INDUSTRY, 2013).

Historically, value adding is often defined using an economic model generated by accountants. Value adding is the creation of perceived value by the consumer where additional benefits are assumed. Sustainability is innovation and forward thinking in decision making that minimises negative impact and maintains balance between economic prosperity and social and ecological survival to ensure a desirable world for all species now and in the future. While there are many views on what a sustainable food system looks like there are some consistent components across all views. These components include but are not restricted to quality, cost of food, the availability of food, safety, health, security, infrastructure, waste and preservation.

The three most common performance indicators that agribusinesses typically focus on are productivity, profit and competitiveness. There are two more factors agribusiness may consider – Value Adding and Sustainability.

Chapter 2: Consumers

The Millennial Generation

The Millennial generation is defined by most demographers as being born between 1980-2000 and is considered the biggest generation of customers. It has been anticipated that Millennials make up 20.5% of Australia's total population (McCrinkle, 2014). The sheer size of this demographic makes them a significant factor in the future of food production and consumption. The Millennials in the United States of America (US) represent 27% of the US population (estimated at 80 million) and are larger than the baby boom generation (Dunn, 2013).

Sheahan (2005) describes the Australian Millennial as street smart – mature, resilient, fast-learners who know how to survive urban life. He also suggests they are fully informed about current issues and highly tech-savvy, but are also in search of meaningful experiences and motivated by deeper concerns than just money.

Future consumer trends will be significantly driven by this generation as they transition into adulthood. Understanding millennials and engaging them is going to be critical and agribusinesses will need to proactively engage with this demographic.

Understanding the Millennial generation opportunity is part of the charter for Californian based value adding business, Bolthouse Farms. Bolthouse was purchased in 2012 by Campbell's, a major multi-national food company. Its product range is built on value added products such as snacking baby carrots, salad dressings and chilled juices. Mr Jeffrey Dunn, (CEO) provided an inspiring presentation at the Produce Marketing Association (PMA) Fresh Summit in New Orleans 18th – 20th October 2013. The key messages from Mr Dunn's presentation covered the opportunity with consumers:

- The millennial generation is NOW
- In the US, 76 million baby boomers will leave US\$30 trillion to millennial children - money to spend on healthy eating
- The Millennial generation are the most optimistic to walk the earth and very interested in what we do as food producers
- The Millennial generation are purpose driven with 51% actively seeking out brands that do good and act responsibly
- Compared to older generations, The Millennial generation are 23% more likely to work out more than twice per week, are 36% more likely to follow a healthy diet plan and 52% of Millennial generation parents closely monitor their children's diets
- We need to have meaningful brands that mean something to the buyer that are beyond differentiation and line extensions
- We need to have an emotionally driven story by a sense of purpose that really resonates for millennial consumers
- As our consumers get healthier, we get wealthier
- The future is the demand chain, not the supply chain. (Dunn, 2013)

Mr Todd Putman – Chief Marketing Officer of Bolthouse, provided some further information at a meeting at their marketing head office in Santa Monica, CA, US, which outlined how Bolthouse are using this information to support business decisions.

Mr Putman's views were:

- The primary goal of Bolthouse Farms is inspiring the fresh revolution. His plans are to grow fruit and vegetable consumption per capita through emotional brand marketing (story telling), packaging and connecting. The obesity epidemic in the US is taking a major financial toll on healthcare. As the country gets healthier, so does their business. The United States First Lady (Michelle Obama) and her advocacy for increasing consumption of fruit and vegetables is a great example in cleaner eating by leadership. The major challenge and opportunity is transforming how people eat.

- Fresh produce and value added sections of supermarkets are achieving better returns than the shelf stable area's – yet the challenge to further invest into these areas are limited due to economic influence and risk averse expansion. Mr Putman identified 10 new products they would like to take to market, but the challenge is in availability of shelf space. While there are certainly some retailers expanding their fresh and chilled offerings, this is less than 10% of the market.
- Bolthouse Farms do not own farms – they partner with growers.
- Twitter and Instagram are their primary platform with information technology. If a Bolthouse product photo is taken and if shared on social media, the uploader receives an electronic coupon for a discount on further purchase – consumption driving further consumption and repeat purchases. Bolthouse have seven people full time managing social media comments 24 hours per day.
- The traditional meal structure of three square meals per day has gone. People are grazing. They are snacking with a need for small bites and smaller calories per occasion with more functionality. Bolthouse are focused on ensuring that consumers have available to them six small grazing meals per day. Consumers want to eat less but want it to mean more.
- Bolthouse are focused in providing functional food benefits to snacking meal occasions. Often functional means a non-desirable taste. There is an important balance that it must taste good and be good for consumers to ensure repeat purchases. (Putman, personal communication, 2013)

Food is fashion

Mr Brian Silberman (2013), previous CEO and President of the Produce Marketing Association (PMA), stated “while we have always had an emotional relationship with food, what’s different is we talk about it more and the discussion is much louder... food is fashion. You wear your diet like you wear your clothes.”

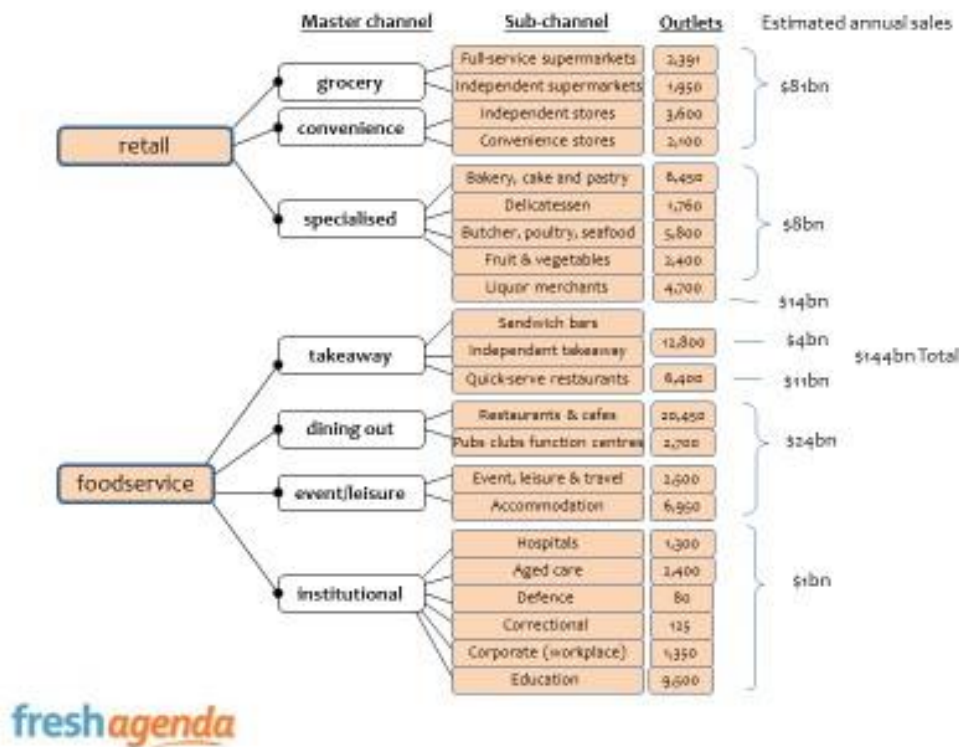
Food consumption has moved past the essential state of survival. Multi-cultural foods are now at our fingertips with unique and exotic ingredients only an on-line order away with information accessible 24 hours a day.

Consumer Channels

Opportunistic agribusinesses were identified globally that are using several sales channels to support risk management. As identified in the graph below, there are quite a number of channels available to agribusinesses to make a low risk entry to market, while building confidence in capability. There are many channels a business can use in accessing new market opportunities.

Figure 2: Channel to the consumer, Steve Spencer, Fresh Agenda

Channels to the consumer



Source: Fresh Agenda (2013)

Individuality

In 2013, global drinks giant Coca Cola swapped their logo for a more personalized and individual bottle. Coca Cola searched for the 250 most popular names in several countries and launched the products into several countries around the world. The first test market was Australia in 2011. The campaign's goals were to engage consumers in sharing a personal bottle with someone they loved, the creation of fun and individuality and connecting the world using technology supporting unity. As pictures were tweeted with the hashtag #shareacoke including the individual's name, the concept went viral.

The campaign was very simple, but it provided an authentic purpose of individuality. It was also a purchase occasion for others. The target market was not specific in this case as it was relative to names only, therefore reaching a much larger audience. Creating a sense of urgency, Coca Cola provided the bottles for a limited time. Consumers did not want to miss out on finding their name on a bottle or a loved one they could share with.

Individuality will be a significant influencing factor in future food consumption. A "one size fits all approach" may have worked in the past – will it work in the future?

Chapter 3: Change

The only constant in change is change itself

The world is changing at a rapid pace. From earlier times, when it took generations of change to industrialize, the agribusiness sector is under increased scrutiny to consistently change and adopt new ways of business operations to meet the demands of an ever changing world. The value adding food sector is a major contributor of Australia's GDP and is changing rapidly as the demand chain and consumer behavior changes.

Barfoots of Botley is a privately owned business which was formed by Peter Barfoot in 1976 in Botley, Hampshire, United Kingdom on 8 hectares of tenanted land. Barfoots now farm over 2,000 hectares on the south coast across Hampshire, Sussex and Isle of Wight. Barfoots is a vertically integrated farming, processing and marketing business ensuring continuity of supply to retail customers through 52 weeks of the year. Barfoots employs over 200 full time and 400 seasonal employees and supplies a range of produce items such as sweetcorn, asparagus, courgettes, squash and more.

Barfoots Technical Director said "Change for us (Barfoots) is a combination of adaptation and entrepreneurial innovation. We are constantly changing all the time and the moment you stop doing this in fresh produce you die! The pace of change is what needs managing... if you are not able to change fast enough you cannot adapt quickly to a changing business environment, if you change too fast processes start to breakdown and too much pressure can be inflicted on a few individuals. Balancing and resourcing change is a critical function that the board undertakes here at Barfoots." (Williams, K., Personal communication, 2013).

In the pursuit of change, a simple methodology can be reflected in the below chart. The ability for a business to change ultimately supports both financial and longevity rewards rather than a business that is happy with the status quo. While the latter is certainly not

incompatible to long term profitability, accumulated pressure will ultimately build in reduced margins due to lack of competitive advantage.

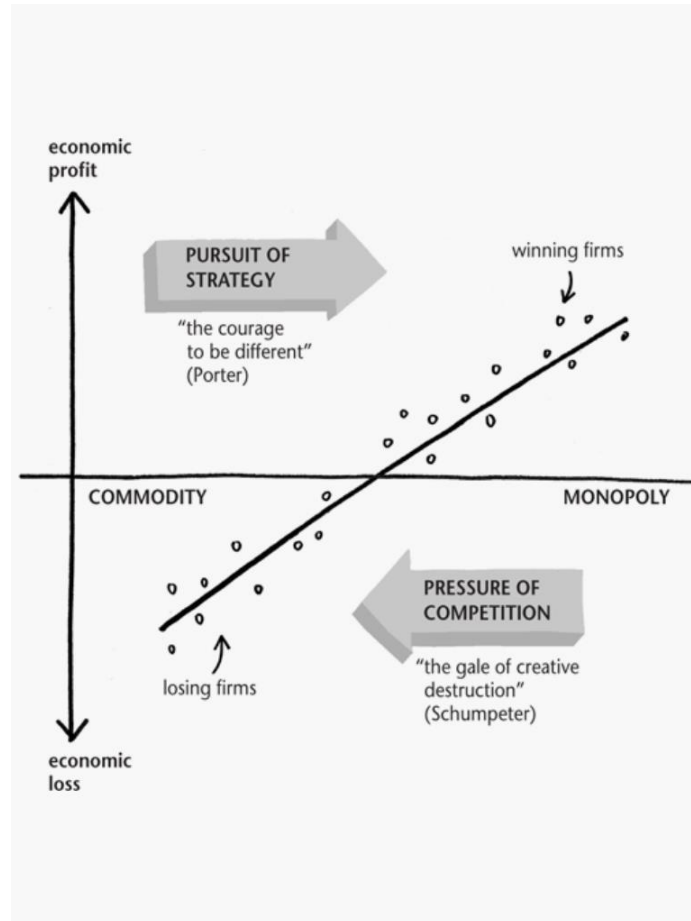


Figure 3: Uncommon Sense, Common Nonsense, Goddard, J (2003) Page 31

Innovative businesses like Barfoots clearly welcome and engage with change. There will be more changes in the next ten years than we have possibly seen in the last 100 years. Predictable patterns may be something of the past, both agronomically and consumer based. The pace of change is going to become exponential.

Changing world order

In a global world of food production and consumption, there is continual change and influences beyond the shores of Australia that impact the way in which agribusiness produces food.

Global changes in food policy, the World Trade Organisation (WTO) losing power to occasionally protectionist Free Trade Agreements, changing currency values, rising new economies, urbanisation driving incomes, nutritious food demand, relaxation of Europe's CAP (common agricultural policy), the US Farm Bill, alliances through bilateral deals, climate change, water availability, availability of arable land and nine billion people to feed by 2050 are examples of impacts that can affect the way Australian agriculture does business. An example of this is best shown in the graph below developed by Steven Spencer of Fresh Agenda, an Australian consulting firm.

Changing world order



freshagenda

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Figure 4: Changing world order. Source Steve Spencer, Fresh Agenda (2013)

From travelling to many countries during my study, it was remarkable to appreciate how connected we are on a global level. Influence from other countries plays a pivotal role in how we produce food. We are intensely connected at a global level and need to think globally in the business decisions we make for stronger success in domestic and international trade.

The balance of power

Historically, supermarkets globally have had significant influence and control on agribusiness. David Northcroft, a 2013 Nuffield Scholar from the UK is also the Category & Varietal Development Manager of Fresh Produce in Waitrose, a major UK retailer. Mr Northcroft (Personal communication, 2014) said “the balance of power is swinging back to the grower”.

Mr Northcroft’s opinion was based primarily on the fact that growers around the world have more choices on where they can sell their fruit as detailed below. Historically, the UK market was a premium market that demanded high standards but provided a good return.

Mr Northcroft (Personal communication, 2014) said “The situation is changing. Emerging economies around the world have a developing middle class which means that growers can target these markets which are paying good money for product, particularly at the shoulders of seasons. Cherries are a great example from South America. The best quality now goes to the Far East and they pay high money for the very early fruit and the UK now is later into the market.

This analogy is occurring in more crops and the more the UK market is pressured by a "discounter" culture in retail, something that is only going to increase over the coming years, the more growers will take more consideration on what market they supply. This will be most evident in fruit crops as they are a more globally traded commodity”.

Affluent and emerging markets are giving rise to more options of customers to access giving more certainty and assurance in risk management of income streams. No longer do all the eggs need to sit in one basket when it comes to customers. Global trade and emerging markets are moving the balance of power back to the grower.

Vertical Integration – controlling your destiny

Vertical Integration is the process of moving further along the supply chain which effectively provides more security and competitiveness. The integration process can involve a number of steps along the chain. In historical terms relative to horticulture, a business may have been growing vegetable crops and sold these to the wholesale markets, effectively losing control at this point. An alternative to this is where the business may choose to be closer to its customers by adding value along the chain. Vertical integration and value adding may involve additional steps such as packing, processing and distribution or the ultimate destination of direct consumer sales. Ultimately, the integration model creates a new direct customer.

Barfoots is a great example of fresh produce vertical integration. “Peter Barfoot started as a farmer first and foremost, then set up a trading business (Barfoots of Botley Ltd) to manage the customer relationship. This grew to a 12 month business and included imports. It was clear to Peter that controlling our own produce from our own farms meant that we could control food safety, pesticides and quality much better than our competitors who ‘traded’ product only. In recent times, the supermarkets have moved to shorter supply chains following the Horsegate scandal and this has put us in a strong position.” (Williams, K., Personal communication, 2013) The Horsegate scandal was a controversial issue in Europe in 2013 where foods advertised as containing beef were identified to contain undeclared or improperly declared horse meat and pork.

In the case of dairy, Simon Wallace is the director of Leitissimo dairy company. Mr Wallace and his team have spent the last ten years building on New Zealand’s dairy techniques and

incorporating them into the tropical landscape of Mambai, western Brazil (approximately 350 kilometers north east of the capital Brasilia). Leitissimo has a 5,500 hectare operation of irrigated centre pivot pastures with each pivot operating as a business unit. The company services 3,500 head of cows; heifers and calves are all raised from stock purchased on the Brazilian market and cross with New Zealand bulls. The result has been an average of 35,000 litres of milk per hectare per year. .

Leitissimo is completely vertically integrated with value adding Ultra Heat Treatment (UHT) facilities on the farm and a fleet of trucks delivering product to domestic consumers from their base. Mr Wallace's investment is the unoccupied, super productive pastoral opportunity for milk production in the tropics and a strong domestic demand for milk. By producing the finished product on his farms, he has strong integration allowing ultimate control of quality and value to consumers.

The Value Chain

The value chain is typically a set of activities that a business operating in a specific industry performs in order to deliver a wanted product or service for the market. Value is typically measured in profit and revenue and with profitability as the primary driver for food production companies.

As retailers globally demand lower prices for food, their margins are not suffering, but being squeezed from the value and supply chain.

Barfoots and Leitissimo have positioned their businesses further along the value chain where greater competitiveness and profitability is achieved. Both companies have achieved value benefits through reduced delivery times, improving customer relationships, enhancing revenue and profit, optimising inventory and improved competitor advantage as they move closer to the customer.

Both Leitissimo and Barfoots are advocates for controlling as much of the supply chain as possible to ultimately control their destiny. The closer a business can move towards the customer, the stronger the benefits are to the business and to the consumer.

Chapter 4: Innovation

Revolution and Evolution

Innovation is typically defined as a new idea that has a perceived better solution to meet the needs of existing markets. Is innovation critical to the longevity of food production and is it critical to survive?

Both Revolutionary and Evolutionary innovations were researched. It is difficult to measure which of the two formats produces the better results as each business case can be different with individual key drivers requiring different strategies.

Revolutionary innovation is a new product or a process where the world adapts to the new idea. Revolutionary innovation can sometimes be reflected as disruptive innovation whereby an innovation can support a new market opportunity and eventually disrupts an existing market. It is often an improved product or service that is not expected by the market. This format of innovation is typically expensive with less predictability when compared with Evolutionary Innovation. Examples of such innovation is the very first products or services produced by Apple, Microsoft or Amazon.

Evolutionary Innovation can be perceived by new products or a process that is adapted into the existing world. This format of innovation typically focusses on preserving and gradually changing existing fundamentals, typically known otherwise as incremental changes or line extensions. Evolutionary Innovation tends to be lower risk with smaller investment and often spread over a longer period of time. Typical examples of evolutionary innovation are food product line extensions on existing core lines. Other examples are car manufacturers with small, steady, cosmetic changes on existing models.

Yamco, a sweet potato value adding company in North Carolina, United States, is a great example of evolutionary innovation. Mr Bill Heafy, CEO, described their business origins as a group of sweet potato growers researching how they could innovate and create new products utilising an existing supply base with close to 50% of North American sweet potatoes (Heafy, Personal communication, 28th October, 2013). With the vision to utilise new technologies, the investment was ultimately made in microwave technology and aseptic filling (the combination of two innovative technologies collectively). The ultimate point of difference was a high quality product that is superior in colour, flavour and shelf life compared with existing sweet potato mash products. The target market is a high volume demand of industrial clients that further value add the product in such products as baby food.

Yamco's pricing model to its customers fluctuated relative to growing conditions and availability. This practice is not common with industrial ingredient sales and supports a new way of thinking and assuring profitability. Mr Heafy commented at the meeting that the biggest threat he felt was lower cost producers in China, though they could not compete with Yamco's unique product offer. While Yamco had created a unique and innovative product offering, their customers are concerned with risk management with no alternative providers globally.

A great example of Revolutionary Innovation was identified with Mace (pronounced Mache), in Ferrara, Italy. Mace was a newly formed company in 2000 dedicated to the investment of value added fruit products. The parent company, Pivetti Holdings, began producing flour and semi-processed flour based products in 1895. Pivetti is a privately owned family company spanning five generations and is highly innovative by nature.

The investment into Mace by the Pivetti family helped solidify additional income streams to the family and risk manage their portfolio of investments. The Pivetti family identified value added fruit as a worthy investment and was the first company in the world to invent and commercialise sliced apple snacks, of which we now see globally. Mace has since gone on to

develop further highly innovative products using niche technologies such as high pressure processing and pulse electric field technology. Mace is also highly mechanised in its approach to cost of goods driven by high labour costs in Italy. In 2003, Mace launched another revolutionary innovation with kiwi on a stick (peeled kiwifruit placed onto a stick and eaten like an ice cream) – the product is chilled and eaten as a fruit snack occasion. The sales channels have primarily been McDonalds in France with other European countries including this product.

Innovation played a pivotal role in many organisations visited throughout many countries. The drivers for innovation were particularly strong in countries that were developed with affluent consumer spending.

In a landscape of domestic affluence, or exporting to affluent target markets, there seemed to be more of an opportunity to be innovative, particularly with product design. Both Yamco and Mace are clear examples of the benefits in supporting innovation for long term and continual business success.

Research & Development

Research and Development (R&D) is referred to as the function of investment towards the innovation, improvement or introduction of a product or process. While R&D and Innovation work hand in hand, what is the importance of R&D in the innovation process?

Mr Lucas Donat, CEO of the company Tiny Rebellion (a marketing consultant company in Santa Monica, CA, US) commented “we ultimately need to understand consumer insights and behaviours to get our R&D delivery right.” (Donat, 2013). Mr Donat has chartered many brand changing products or services over many years and is renowned for his expertise in shifting brand paradigms in several industries. For greater success in commercial opportunities, R&D needs to be ultimately focused on consumer insights for the best outcome.

R&D spend expenditure varied in countries visited ranging from large multi-nationals investing between 0.2 – 1.8% of gross revenue compared with peak industry bodies, such as the Californian Strawberry Commission spending 21% of revenue on R&D through collected levy revenue. Budget spending on R&D was highly driven by the life stage of the business or enterprise and investment background (public or private).

Several university facilities were visited who cited their ability and cost benefit to outsource R&D activity. Of particular mention is Penn State University, Pennsylvania, United States. Mr Daniel Azzara (Personal communication, 2013) of Penn State University, advocated the universities abilities to provide food chemistry, food choice and consumer behaviour, food engineering and processing and food microbiology as core elements in R&D support to commercial businesses. Extension of the R&D is then transferred to food companies. Outsourcing R&D functions is a plausible format in minimising risk especially with primary investigative R&D activities.

Conducting Research and Development is the vital link to understanding the right delivery and providing the company with opportunity to innovate beyond its current charter.

Technology advancements

New processing technologies have emerged in recent years creating consumer benefits such as fresh, preservative free, clean label, attractive sensory attributes, high levels of food safety and health benefit credentials. While existing preservation technologies of thermal processing or freezing still exist, they are generally associated with commodity food products. The uptake of new technologies are providing a technology platform allowing value adding companies to be unique and command a premium. Most companies that utilise new technologies are typically driven by a cost benefit in production or providing consumer benefits that cannot be achieved by existing processing methods.

Examples of new technologies either commercially used or being investigated:

Non-Thermal Technologies:

- High pressure processing (HPP)
- Ultrasonics
- Ultraviolet light
- Pulsed Electric Field (PEF)

Thermal Technologies:

- Microwave technology
- Irradiation

Several companies were visited that are currently using HPP technology as this technology seemed to have the greatest uptake globally of the new non-thermal technologies available. HPP involves the application of very high pressure (six times atmospheric pressure) to pre-packaged, bulk liquid or solid foods inside a hydrostatic press. Food is typically produced in batches by manually loading into a basket to which pressure is applied through the introduction of water inside a pressure vessel, effectively submerging the packaged food products. Vegetative bacteria is inactivated at elevated pressures making the food safe for consumption and achieving similar functionality to thermal processing. The major benefit of the technology is the ability to minimise effect on structure, vitamins or colour providing a superior finished product highly desirable by consumers. HPP technology has been utilised by several food commodities such as fruits and vegetables, juices, ready to eat meats, oysters and seafood.

Don Simon, a privately held fruit juice company with its production plant in Huelva, Spain is the fourth largest juice processor in Europe and launched its first juice brand in 1982. The factory is surrounded by 1500 hectares of privately owned orange orchards where fruit is squeezed and bottled within 24 hours of being picked and delivered to 30 countries around the world. Don Simon can process more than 2,000 tonnes of oranges per day with high

speed bottling lines filling 24,000 bottles per hour. Robotic warehouses control the 14,000 pallet spaces of products.

Don Simon is owned by J.Garcia Carrion, a family owned juice and wine producer with a rich 120 year history of being a leader of the wine and juice market in Spain. J.Garcia Carrion is the fifth largest wine producer in the world.

Mr Manuel Gonzalez de la Vega , Director of Quality, commented that the he believes there is certainly a future in HPP technology with the company recently purchasing a HPP machine to test market consumer acceptance in premium fresh juices (Pers. comm, 2013). Mr Gonzalez de la Vega commented that the consumers desire higher nutritional value, preservative free, not from concentrate and fresh tasting juices. While there is a distinct existing market for thermally pasteurized product sold at commodity prices, there is a large opportunity to capitalize on these consumer needs using HPP technology.

Avomix, a value adding avocado company based in Malaga, Spain, has also invested into HPP technology in the production of fresh guacamole for European customers. Mr Luis Bravo, Export Manager of Avomix commented that the business needed to move forward with innovative technologies to differentiate them from other avocado processors within Europe. HPP technology allowed them to achieve a consumer benefit of a “homestyle, chunky avocado”, which is superior in quality and delivery when compared with thermally processed and acidified guacamole products which have been commercially available for many years.

Chapter 5: Sustainability

The word sustainability is derived from the Latin *sustinere* – meaning to hold, maintain, support or endure. Throughout the countries visited, there were certainly varying degrees of sustainability and different drivers of influence. On most occasions, sustainability was defined by three core factors – Environment, People/Social and Profit/Economic.

What is certain is the changing values and consumer preferences that surround sustainability and how business manages these practices. The changing social and environmental values are a complex challenge and a continual moving target that should be continually reviewed and updated. While Sustainability is a core element in food production, consumers are also showing an increasing desire to know that the food they are eating is sustainable. Consumers desire to understand where their food comes from and ethical sourcing is increasing daily. Smart businesses will capitalise on this demand and promote their investment into sustainability to ultimately convert into product sales, consumer retention and relationship with a brand.

The demand chain will need to work closely with all stakeholders within the chain to achieve the greatest benefit with a collaborative approach including retailers and suppliers.

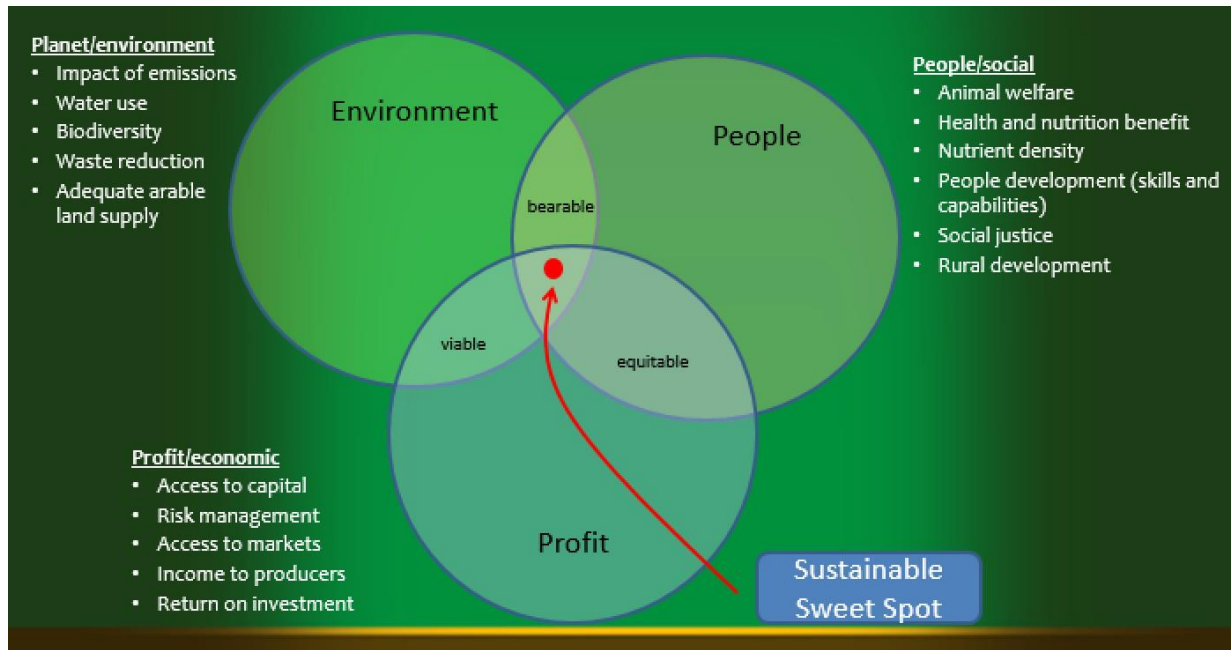


Figure 5: The sustainable sweet spot, source Trent De Paoli

The sustainability sweet spot as pictured above, is a reflection of balance and equality in priority. Meeting the needs of our present day without compromising on the ability for future generations to meet their own needs is the key principle behind the concept. While each business has different priorities supporting each element, the blend of bearable, viable and equitable circumstances promote the opportunity for the sweet spot balance. Of the companies visited, it was noted that to be truly successful, the overall business must be coordinated in unity to benefit. Integration must exist in balance to achieve a consistent, beneficial and reliable outcome.

Anaerobic Digestion

Anaerobic Digestion (AD) plants have been extensively adopted in many countries. Of particular mention is the AD plant established at Barfoots in the UK. Barfoots built the very first on farm 3MW AD plant in 2010. With a capital cost of \$4.2M (including a government grant of \$750,000), the AD plant uses 26,000 metric tonne of vegetable waste annually of which 90% is sweetcorn husks. The AD plant is producing 3 times the required energy with the surplus energy sold to the National Grid with enough capacity to power in excess of 2000 homes. The AD waste usage removed 5,000 tractor/truck movements from their local roads each year. Barfoots UK packing and processing facility is now carbon negative as a result.

Barfoots are also certified to convert the digestate to green manure fertiliser reducing expenditure on synthetic fertiliser.

A great example in the balance of the 3 factors of economic, environmental and social aspects to achieve the sweet spot relative to AD is:

1. Economic – Seven year pay back, zero electricity from the grid, no landfill waste costs
2. Environmental – Zero land fill, fertiliser benefit, no reliance on fossil fuel for electricity generation
3. People – Reduction in tractor/truck journeys locally inspiring a “feel good” factor for staff, great publicity for the local “green business”

Conclusion and Recommendations

Winning agribusinesses in the future will need to thrive on chaos and turbulence. Profound success is becoming less predictable. Global markets are dynamic and chaotic and the most competitive ever. Successful operations will find value adding opportunities where there are no competitors.

Value adding and sustainability are critical fundamentals that horticultural operations should consider to be stronger in the future. Agribusinesses must consider themselves to be driven by consumers and the demand chain rather than planting and hoping for the best. Controlling your destiny will be critical to survive and prosper. We are in a globally connected world that is inertly connected. We must act local, but think global.

We are responsible for inspiring a fresh revolution in ensuring the future of consumption is strong in fresh fruit and vegetables. Ultimately, as our consumers get healthier, we get wealthier. Innovation must continually drive our existence and our desire to change must be continual to be globally competitive. Globally there is a push of doing more with less and Australian production is at the forefront of innovation. The pressures of electricity, wages, water and other costs continue to impact our costs of production. The rate in which we have managed these changes is profound and smart businesses will see opportunity.

Food is fashionable and a very exciting and sexy place to be. The simple fundamental of supply and demand ultimately drives growth and horticultural production in Australia is in a great position to meet these requirements. Opportunity is limitless with the right mindset and charter to explore the unknown. There are multiple sales channels that one should consider in new opportunities. A solid business has multiple income streams supporting risk management and consideration should be given to diversify where possible.

Sustainability will play a very important role in agribusiness in the next ten years.

Consumer's demand for product knowledge is ever increasing. Careful consideration in fixed and variable costs are needed in identification of short, medium and long term investments.

We must continually change and adapt. If you keep doing the same thing, you will get the same results. This is the most important element identified in agribusiness globally.

Successful leaders welcomed change and embraced the opportunity. We cannot predict the future but we must embrace the change. Horticulture in Australia, while fiercely competitive is the most exciting it has ever been and provides great opportunity for those who seek to differentiate, add value and focus on environmental, financial and social investment.

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Plain English Compendium Summary

Project Title:	Name of Value Adding and Sustainability after the farm gate
Nuffield Australia Project No.: Scholar: Organisation: Phone: Fax: Email:	Trent De Paoli Austchilli 4496 Goodwood Rd, Bundaberg Queensland, 4670 +61 7 41 503 300 + 61 7 41 503 399 trent@austchilli.com.au
Objectives	To investigate agribusinesses globally that are value adding, identify the characteristics that defines their existence and form a view of horticultural value adding and sustainability and what the future may hold
Background	The value added fresh produce sector in Australia accounts for \$5.5 B in revenue. As consolidation occurs within our industry, how can we be sure value adding is the right way forward and how important will sustainability be to our businesses?
Research	Value adding agribusinesses were visited throughout ten countries to understand what opportunities value adding holds and how important is sustainability in their business models
Outcomes	The study revealed that value adding should be considered to support long term profitability and extends control into the demand chain. Sustainability will become even more important in the coming years and which opportunistic agribusiness will use to their advantage in achieving the sweet spot.
Implications	The more horticultural businesses in Australia can add value to their products, the stronger the likelihood of success. The Australian horticultural industry needs to consider how they can take stronger control of their destiny.
Publications	Nil