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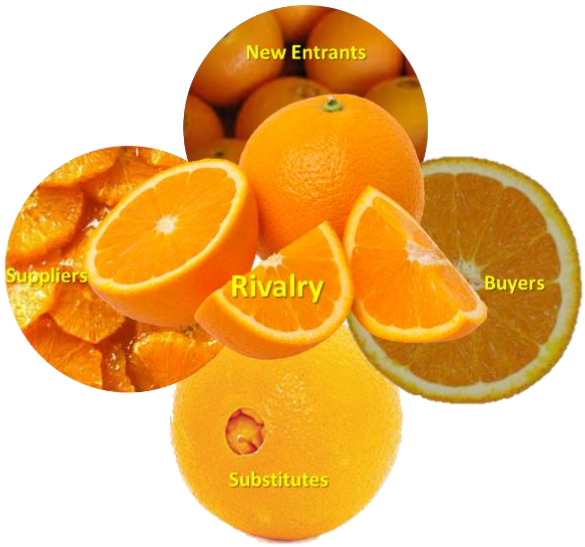
PROGRAMME

The Future of Gisborne Navel Oranges:

Sweet or Sour?



Kellogg Rural Leadership Programme

Course 37

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SUMMARY

This report looks into Gisborne navel orange production and investigates why a product (Gisborne navel oranges) with world class attributes fails to deliver reasonable returns to producers, and what can be done to improve, not only this industry, but also likely to be applicable to other products or industries that may find themselves in a similar position.

Using both Porters Five Forces and SWOT analysis this report looks at core issues facing the industry. The industry is made up of a large number of small producer's most of whom have no connection with the consumer.

With the exception of the shoulders of the season, typical grower returns are only sufficient to cover expenses. This is a long standing issue and previous attempts to improve grower returns have been short lived. Recent attempts by the industry to lift consumer acceptance through the introduction of a voluntary maturity standard has improved fruit in the market, but falls short of making sufficient change to lift grower returns.

The biggest natural advantage of Gisborne Navel oranges is their ability to taste better than any other navels if left to reach their maturity potential; yet fruit entering the market is inconsistent and growers typically pick fruit very early in the maturity cycle, long before they are at their best. There is little to no differentiation in the market and consumers typically don't know one navel orange from another.

There is a need for Growers to focus more on the consumer, and work together as an organised group to get sufficient control of the supply to make a significant impact on lifting quality and coordinating volume through the supply chain. Without significant change, returns to growers are likely to remain low.

Acknowledgments

I would like to thank all of those who have assisted me with my Kellogg journey and this report; the open doors, the free and frank comments, and access to information, In particular:

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1 INTRODUCTION

A story heard time and time again across New Zealand, from the North to the South and East to the West is that great products from our fantastic land are failing to provide their producers with a reasonable financial return. Gisborne Navel oranges are a great example of such a product. Navel oranges in NZ can be very good, and the Gisborne region is capable of growing the best tasting Navel oranges in the world.

Market analysis, personal interviews and consumer preference analysis of the industry paints a less rosy picture. The reality for this industry, is a product which is of highly variable quality, with very little coordination through the supply chain and returning disappointing value back to producers; and most consumers not ever realising the true potential flavour of a very good Gisborne Navel orange.

This project looks at the current NZ navel orange industry and focuses in more specifically on Gisborne Navel oranges, and why a product such as this fails to give good returns to growers, and what improvement options exist for this Industry and may well be applicable to other products facing a similar dilemma.

Although the recommendations of this report may be applicable to the whole NZ navel industry, this report focuses on Gisborne navels as the region is recognised for being able to produce better flavour than other growing regions, and represents the majority (>75%) of the NZ navel orange production (approximately 9,000t-10,000t/annum).

2 BACKGROUND

The Navel Orange Industry is made up of a large number of small growers (approximately 100 growers). The exact size of the NZ Navel Industry in unknown; however, New Zealand Citrus Growers Incorporation (NZCGI) market monitoring data estimated in 2014 11,871 tonnes of Navels; 2014 was a large crop and the average yearly production is more like 9,000 tonnes. A 2015 NZ Citrus Growers Incorporated survey (Market Access Solutionz Ltd, 2016) captured an estimated 67% of Navel growers; taking these numbers and other estimates of the industry have the size at around 280,000 trees on 500ha, producing somewhere in the range of 9,000 - 12,000 tonnes each year; three quarters of which are grown in the Gisborne area.

As with most citrus, Navels can be relatively easy care when compared to many other crops. Possibly because of this citrus orchards have proven to be popular amongst Hill country farmers seeking semi-retirement on flat properties nearer town, and life-stylers alike. This contributes to a Navel Industry that has a lot of small independent producers, many of whom don't rely on the crop for their primary income. This results in growers producing a wide range of quality being produced, a short term view focusing on getting a crop of a quickly as possible for the best return offered on the day.

A typical scenario is for growers to sell their fruit to a packhouse following receiving an indicative price. Pack houses then have arrangements with marketers who distribute fruit to Supermarkets and other outlets around the country. It is uncommon for growers to have any relationship beyond the packhouse. Very little (<5%) of fruit is exported.

The reality of poor returns has existed for Navel orange growers for many years. In 1999, 37 growers came together to form the Gisborne Citrus Growers Co-op Ltd. The aim of this group was to increase Orchard gate returns to growers through bringing a lot of "Backyard growers" together with larger growers for the greater good, monitoring and advice to growers, conducting research and development, and coordinated supply to supermarkets. Within the first year orderly marketing saw grower returns lifted by approximately 50% (Williams, pers comm 2018).

After several successful years the Gisborne Citrus Growers Co-op came under pressure, as packers and marketers not part of the arrangement began to lure growers away from the group with offers of higher prices. As a result the Co-op failed to hold its grip of the Navel supply and the industry returned to a similar model of fragmentation and disappointing grower returns.

The objective of this report is to take a look into a product that can be world class, yet fails to deliver good returns to the producers. Using Navel Oranges as a case study, this report looks at the current state of the NZ Navel Industry, some of the issues and opportunities; and more specifically looks at Gisborne Navel Oranges and their future as a crop, drawing on past learnings from this industry and other products that face similar challenges.

3 METHODOLOGY/DESIGN

3.1 Key sources of information:

- NZ Citrus Growers Inc.
- 10 Personal Interviews with Suppliers, Industry (inside and outside of Citrus Industry), Middle Men, the Market, and Consumers.
- Web search of relevant topics.
- Citrus reference books.

3.2 Analysis

To break the problem down this report divided those involved in the Industry into five groups.

3.2.1 Five key influencers in the Industry:

1. Suppliers.
2. Industry.
3. Middle men (packers and marketers).
4. Market.
5. Consumers.

There are also two dominant angles to look at the situation: from the Supply side and the Demand side.

3.2.2 Supply (Producer) side analysis:

1. Quality (internal, external, consistency).
2. Yield.
3. Production costs.
4. Challenges.
5. Supply vs demand; timing, volume, competition from other products.
6. Marketing.

Quality from the perspective of the Supplier (Grower) means being interested in: doing the right things, doing it the right way, doing it right the first time, doing it without exceeding cost. (The Different Views of Quality, 2009.)

3.2.3 Demand (Consumer) side analysis:

1. Quality (internal, external, consistency).
2. Price currently paid; would consumer be prepared to pay more for higher quality?
3. Supply vs demand; timing, volumes, competition from other products.

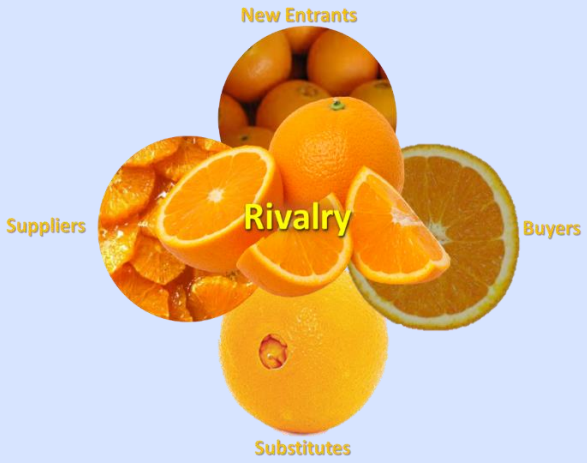
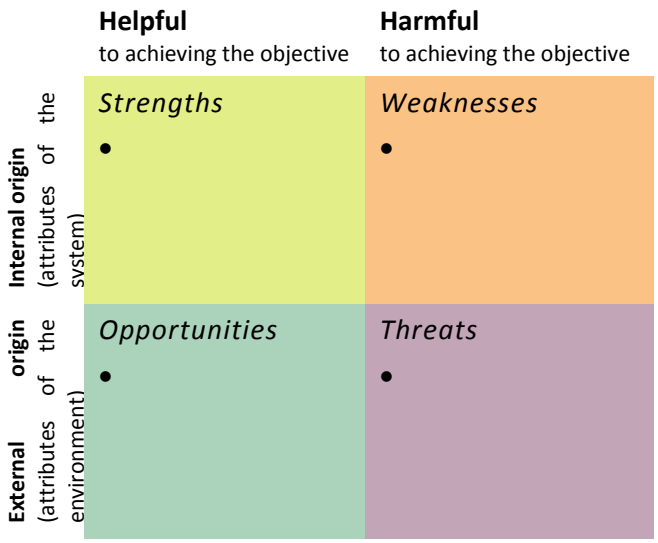
Consumers view on quality is to be: receiving the right product for their use, being satisfied that their needs have been met; meeting their expectations, being treated with integrity, courtesy and respect. (The Different Views of Quality, 2009.)

3.3 Further Review and Analysis

- Existing Literature
- Porter's Five Forces Model
- SWOT analysis

3.3.1 Existing Literature

Information gathered was reviewed taking into consideration which angle of influence was appropriate (i.e. supplier's vs marketers). Although all interviewees are potential consumers and were asked questions relevant to consumers; their key influence was one of Supplier, Industry, Middle men, or Market; with Consumer information primarily coming from specific research on consumer's behaviour and their preferences.

3.3.2 Porter's Five Forces model to look at Gisborne Navel Oranges.	3.3.3 SWOT analysis is then used to further analyse these options.
	

4 KEY FINDINGS

4.1 Navel Orange Gross margins

Analysis of returns for Navel oranges, shows that currently most growers struggle to make any significant profit, with Income and Total expenses (machinery, overheads, and land included) around breakeven point.

Table 1: Cost of production based on NZCGI Citrus cost calculator

(NZCGI Citrus Calculator,)	$/ha	$/tree	$/kg	Total/ha
Fertiliser	$317			**$317**
Chemical*	$1,924			**$1,924**
Thinning				**$0**
Harvesting			$0.15	**$4,500**
Transport			$0.03	**$900**
Pruning		$1.50		**$1,200**
			Total Cost / ha =	**$8,841**

This calculator indicates approximate direct growing costs and does not take into account other orchard expenses e.g. machinery, depreciation, overheads, loan repayments etc. (NZCGI Citrus Calculator,)

Table 2: Sensitivity analysis of Orchard Gate Return (OGR) price:

Gross Margin sensitivity analysis ($/ha)

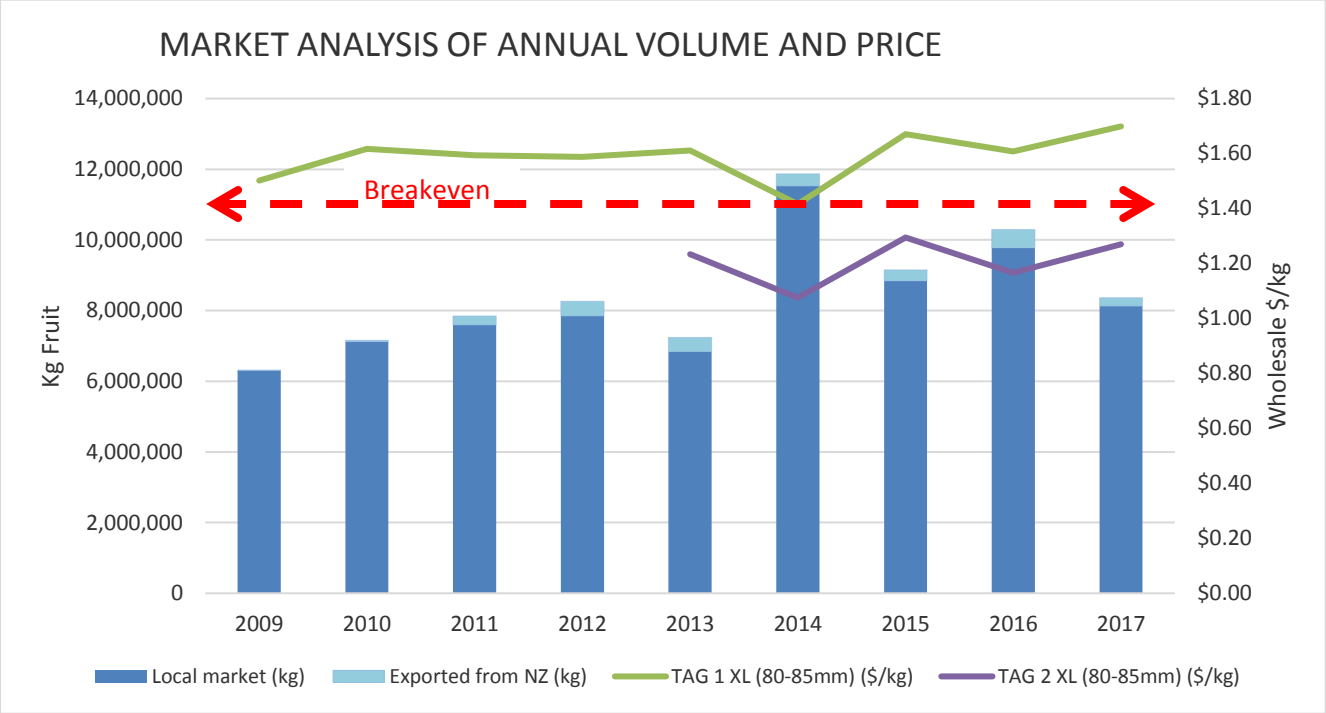
		Average price (OGR $/kg)							
		$ 0.35	$ 0.40	$ 0.45	$ 0.50	$ 0.55	$ 0.60	$ 0.65	$ 0.70
kg/ha	20,000	-$41	$959	$1,959	$2,959	$3,959	$4,959	$5,959	$6,959
	25,000	$809	$2,059	$3,309	$4,559	$5,809	$7,059	$8,309	$9,559
	30,000	$1,659	$3,159	$4,659	$6,159	$7,659	$9,159	$10,659	$12,159
	35,000	$2,509	$4,259	$6,009	$7,759	$9,509	$11,259	$13,009	$14,759
	40,000	$3,359	$5,359	$7,359	$9,359	$11,359	$13,359	$15,359	$17,359
	45,000	$4,209	$6,459	$8,709	$10,959	$13,209	$15,459	$17,709	$19,959
	50,000	$5,059	$7,559	$10,059	$12,559	$15,059	$17,559	$20,059	$22,559

The red box in Table 2 shows where most growers sit, prior to costs such as machinery, overheads, loan repayments etc.

The difference between orchard gate returns (OGR) and wholesale prices varies, but is approximately $0.80-$0.90 cents, this is essentially the costs of the packer/marketer.

4.2 NZ Navel Market Analysis

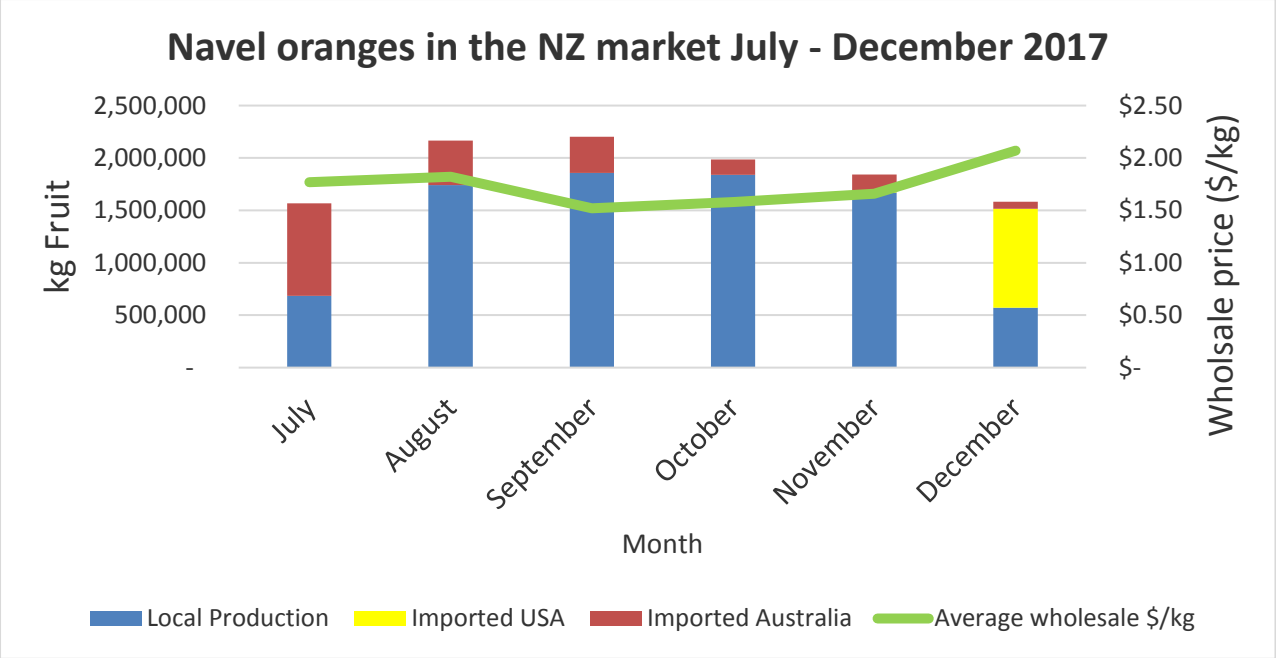
Figure 1: Annual navel production volumes and indicative pricing



(Analysed using NZCGI Market data)

Figure 1 shows annual production volumes and quantity exported, alongside the wholesale prices achieved. Note this is only showing prices for extra-large (XL) fruit, and the average price across all sizes and grades will be lower than this. This shows that the best size (XL) and grade (Tag 1) gives a wholesale price that gives growers a positive return each year. When all grades and sizes are taken into account, average grower returns are around breakeven point with Income equal to total expenses (including machinery, overheads and land).

Figure 2: 2017 season navel volumes in the NZ market



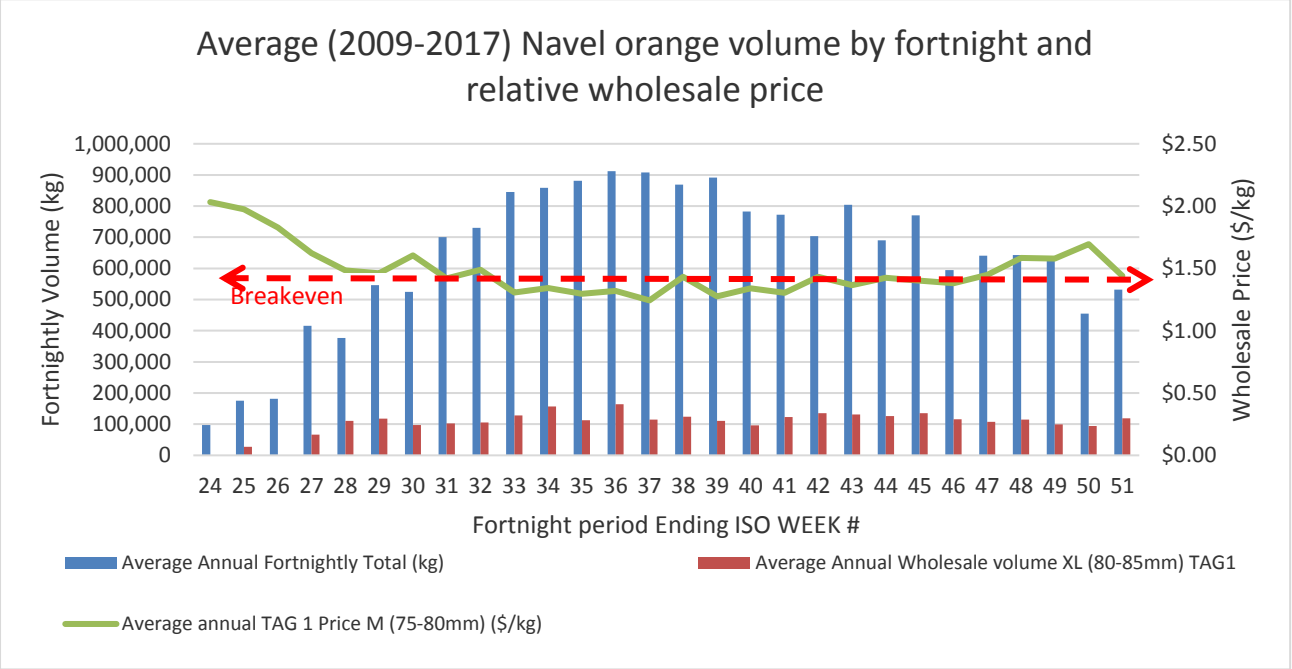
(Analysed using NZCGI Market data)

Figure 2 shows the volumes of navel oranges sold from July to December (NZ navel production season) on the NZ domestic market in 2017 and their country of origin, alongside the wholesale price. Imported fruit from Australia compete with NZ domestic production throughout the season, and with fruit imported from USA competing late in the season.

4.3 Volume and price

With the exception of either end of the Navel season, on average Navel orange growers are at or around breakeven point. To be sustainable returns need to lift. Navels are aggressively priced (i.e. “they are cheap!!”); there is no brand recognition and hence no loyalty either, and consumers/sales are driven by price (Roach, 2018).

Figure 3: Seasonal fortnightly volume and wholesale pricing



Note: Figures are expressed in fortnightly volume; volumes are expressed each ISOweek as some years data have used different fortnightly periods (NZCGI market data). See Figure 3.

4.4 Seasonal volume

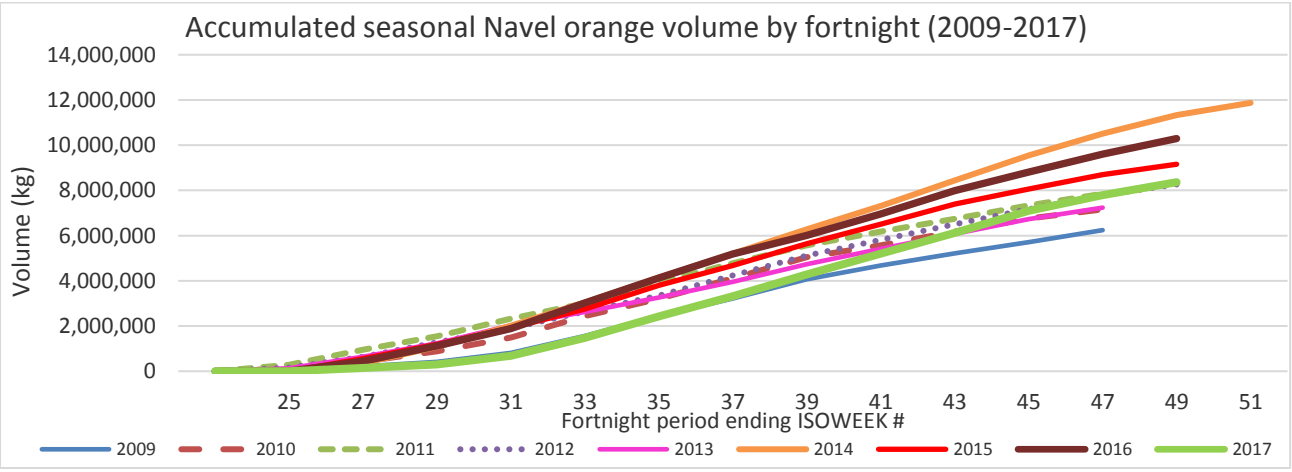


Figure 4: Accumulated annual navel production in NZ

Approximately another 3,000,000kg of navel oranges are imported into NZ from Australia and USA in the NZ Navel season from (July – December), with either US or Australian navels being available in NZ all year.

4.5 Consumer Preferences and Satisfaction:

Navels compete with all fruit. Ease and convenience, looks, and taste are key consumer considerations. Consumers will ask themselves when deciding whether to buy navel oranges, is a navel worth the effort? (Roach, 2018).

The Consumer is key in driving product success. Consumer behaviour is often affected not only by factors such as genetics, age, gender, culture; but also product specific factors (sensory) and marketing as well (Laura Reuss, 2016).

Buyers and consumers, however, often have additional criteria by which they judge produce quality, including flavour, ripeness, odour, cleanliness, and the presence of insects and foreign material. (Evaluating Market Demand, n.d.)

Price and quality are synonymous in fruit and vegetable production. Unfortunately, it is not always easy to know what is meant by "high quality" and quality judgment often varies from year to year.

An American study looking at the fruit quality characteristics that affect consumer preferences on Satsuma mandarins (Benjamin L. Campbell, 2004) found, price, skin colour, fruit size, area of surface blemishes, production region label, and organic production practices were important to consumers.

Australian studies (Projects CT12004 'Australian Citrus Quality Standards Program – Stage 2' and CT 12023 'Enhancing the export performance of Australian mandarins by improving flavour quality', 2013) support the use of the 'Australian Citrus Standard' (based on BrimA) as a criteria more in line with consumer flavour acceptability. The results showed that the most important attributes for consumers when shopping for navel oranges were good taste/flavour, followed by freshness, juiciness, health benefits, and the sweet/sour balance. They found flavour attributes were notably more important than other traits such as price/value for money, being blemish-free and skin colour.

Consumer preferences for fresh citrus were studied in the US (Zhifeng Gao, 2011), who demonstrated that again, freshness, flavour and appearance are the most important attributes, however they also found inconsistencies in preference between purchase and consumption. Consumers often acted with perfectionist tendencies (wanting all attributes) before purchase, but after eating the fruit, they became more concerned with price. Price can influence not only value but how consumers perceive quality; for example they may think quality is a result of the correct season, and assume good quality comes with a lower price. When consumers purchased poor quality fruit, they may regret the price they paid for the fruit. However, after eating the fruit, the perceived link between price and quality was lost (Zhifeng Gao, 2011).

Shoppers who purchased fruit but did not eat it, or had not eaten any for some time, tend to favour aesthetic attributes whereas purchasers who have recently eaten the citrus fruit change their preference to focus towards internal preferences such as flavour. One survey involving 300 consumers in the UK had 98% of respondents say they used past experience to help decide what citrus to purchase, and only 22% said they were influenced by promotional material. (Flavour matters- A brief review on what consumers look for in fresh oranges and mandarins, n.d.)

Citrus as a category has been declining internationally over the past 20 years (Zhifeng Gao, 2011); consumers want convenience, and although some citrus such as easy peel seedless Satsuma mandarins offer convenience, oranges can be seen as difficult and messy. Oranges aren't the most convenient option for consumers, mandarins, apples and bananas are easier; oranges need to rely on their flavour to keep their position in the market (Roach, 2018).

4.5.1 Quality

Two main considerations: internal quality and external quality.

4.5.1.1 External Quality:

New Zealand has difficulty growing perfect looking citrus. Gisborne Navel oranges are no exception as the exposure to wind and rain provide the grower with an ongoing challenge. General Agronomy and especially good tree management can significantly improve external characteristics.

4.5.1.2 Internal Quality:

Figure 5: ***Consumer preferences for Citrus fruit attributes****:*

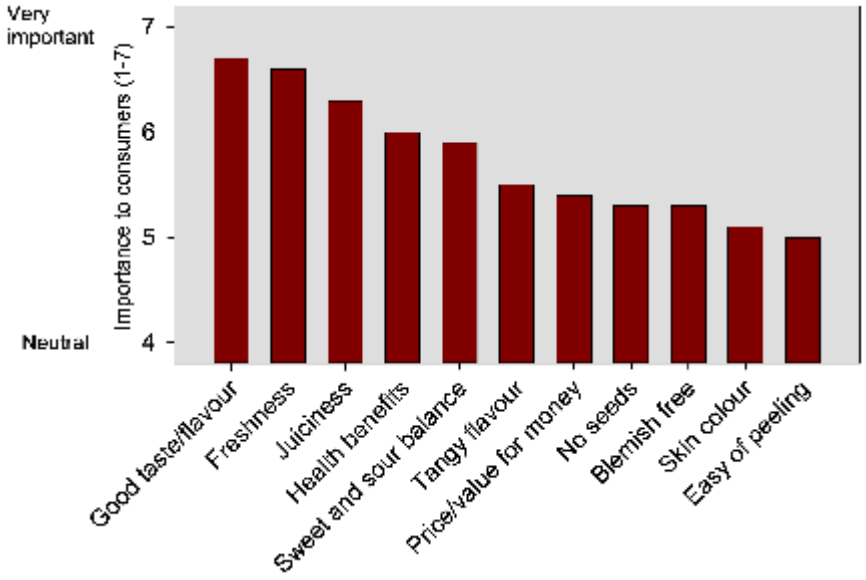


Figure 5 Reprinted from Flavour Matters, Australian Department of Agriculture and Fisheries (Flavour matters- A brief review on what consumers look for in fresh oranges and mandarins, n.d.)

Gisborne Navel oranges have long been recognised for their fantastic flavour. Gisborne's temperate climate with the combination of hot days and cooler nights produces fruit with intense flavour. Put simplistically, fruit with good Brix (a measure indicating the level of sugar in the fruit) and moderate acid levels will give a more intense flavour than fruit of similar Brix and lower acid; however if the acid level is too high, the fruit will be sour. Higher Brix fruit can balance higher acidity. The balance of Brix and acid is a crude indication of consumer acceptability.

What differentiates Gisborne navel oranges from imported navels from USA or Australia is that generally imported fruit has lower acid. As a result of this, imported fruit can often be sweet but described as bland, where as local fruit is either very good if it has sufficient Brix to balance the higher acid, or it is described as sour. Over time as fruit reaches maturity, Brix will increase and Acid will decrease.

Like many citrus in NZ, the internal quality of navel oranges has been, and continues to be a hot area for contention. Pressure from growers to get fruit off the tree as quickly as possible, and the attraction of early season prices acts as a lure to push the start of the season.

4.5.2 Maturity testing

The NZ citrus industry has used the ratio of Brix (sweet) to Acid (sour) as the measure of fruit maturity. No compulsory standards have been used on a national scale. Since 2004 the industry standard has been to a minimum Brix of 10.5 and a minimum Brix: Acid ratio of 8 (equivalent to 8:1). With an average Brix: Acid ratio close to the standard, approximately 50% of the fruit in the sample will, by definition, not meet the standard. (Loeffen, Sampling Methodology for Maturity Testing of Navel Oranges - Updated, 2016).

4.5.2.1 BrimA

BrimA was developed in the US and has now been adopted in Australia and NZ. BrimA replaces the old voluntary maturity standard of brix acid ratio (Brix/Acid).

The maturity standard now requires ≥75% of the fruit from a minimum 32 fruit sample to have a BrimA value of ≥90.

Figure 6: The equation for calculating the scaled BrimA value for navel oranges

BrimA = (Brix – (TA*4))*16.5

Where: Brix = measured brix value; and

TA = measured titratable acid expressed as % Citric Acid

• Brix and acid is measured for each fruit

• Sampling and testing must follow the Navel Orange Sampling Methodology.

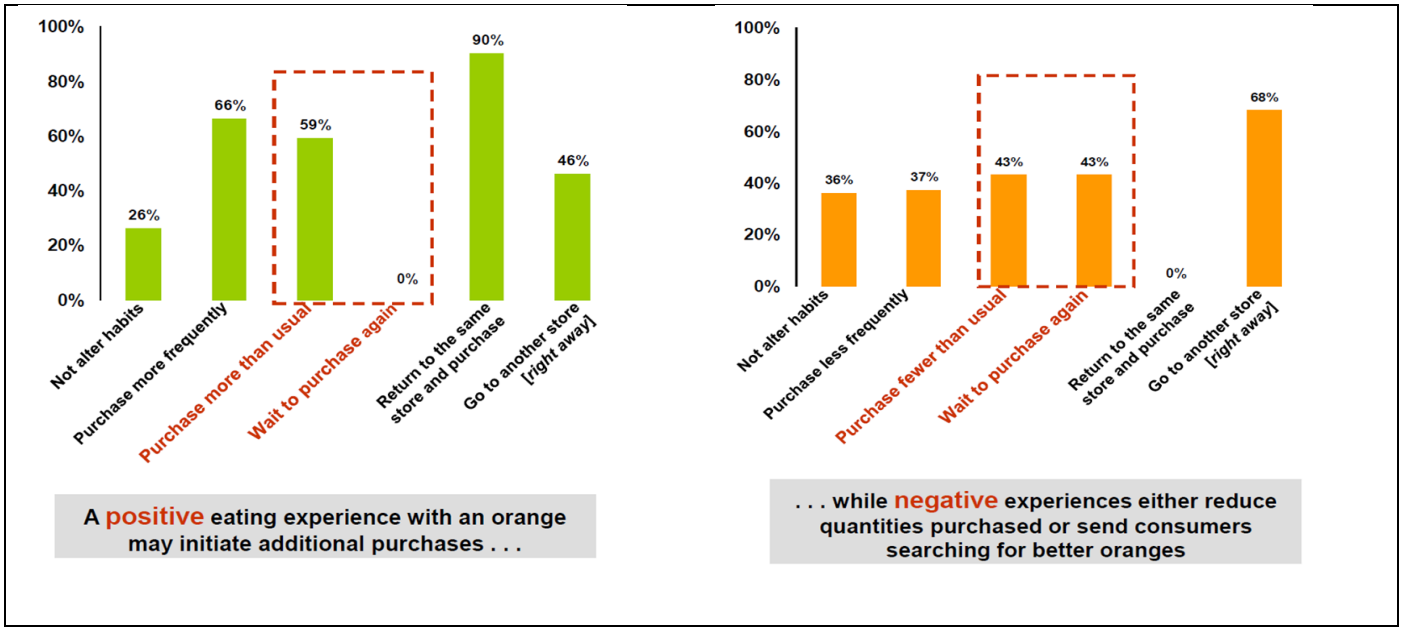
A summary of the on-orchard sampling methodology and testing protocol follows this standard, full detail is available in the final report for NZCGI Project 163 (Loeffen, Sampling Methodology for Maturity Testing of Navel Oranges - Updated, 2016).

Table 3: ***BrimA Scores and their relative consumer acceptance***

Hedonic Score	Description	BrimA value	
1	Dislike Extremely		*At the minimum maturity standard (Brix/Acid) of 8:1, the hedonic score calculated from the overall regression equation was 4.4, a value well into the "dislike" range, indicating that the current standard is likely set at too low of a value to satisfy most consumers. It is not until Brix/Acid was 13.0, did the hedonic score reach 6 a level described as "like slightly" (David Obenland, 2009).*
2	dislike very much	10	
3	dislike moderately	40	
4	dislike slightly	65	
5	neither like nor dislike	90	
6	like slightly	110	
7	like moderately	160	
8	like very much		
9	like extremely		

Since the adoption of BrimA as the NZ Industry (voluntary) standard for Navel oranges in 2016, supermarket monitoring data showed that fruit that met the minimum standard had increased from 62% to 93% (Loeffen, Supermarket Data Analysis, Navel oranges, 2016). Navel orange samples taken from supermarkets in 2015 showed that 90% of Australian fruit and only 65% of local fruit met the minimum BrimA standard. Australian and local fruit typically have similar Brix however Australian fruit tend to have lower acid levels; it was also noted that some of the Australian fruit sampled had very low juice content (Loeffen, Supermarket Data Analysis, Navel oranges, 2015).

Figure 7: ***Consumer reaction to fruit taste****. Source: (Loeffen, Supermarket Data Analysis, Navel oranges, 2015)*



Supermarket analysis from 2017 (Loeffen, Supermarket Data Analysis, Navel oranges, 2017) found fruit in the market that was an estimated 3-4 weeks from reaching the minimum standard. The analysis estimated the effect of this is putting consumers off from repurchasing navel oranges for 1 month.

It is estimated that around 80% of the navel orange industry are using the voluntary BrimA standard.

"If consumers like the fruit they buy they will repurchase the same amount the following week. But if you put in immature fruit, it doesn't matter how much great the product is you put in after that. It is too late . . . the consumers are gone."" (Walsh, 2017)

> *Delytics website (Delytics, 2018) quotes Countdown Produce Buyer, Chris Langdon as saying, "We are very focused on making sure that the fruit we get early in the season is good quality so our consumers enjoy it and repeat purchase. We don't want the hard work we have done to encourage consumers to support New Zealand fruit undermined by people taking shortcuts with early season fruit. What the navel growers are doing makes our job a lot easier to make sure the fruit we are selling is excellent. The feedback from our team is that the early season navels were pretty robust from the start this year, as far as the taste profile goes." "In my mind, this sort of quality monitoring should become mandatory across all facets of the fruit industry." (NZ Citrus Growers Inc. - Navel Oranges, n.d.)*

The 2016 standard has clearly lifted the quality of navel oranges in NZ. A standard which aims for only ¾ of fruit to be classified where consumers "neither like nor dislike" their eating experience, is not capitalising on the ability of Gisborne navels to give consumers a very good eating experience. The current incentive for growers to pick a high proportion of their crop at minimum maturity to gain higher prices in the early season is not helping the quality of the consumer experience.

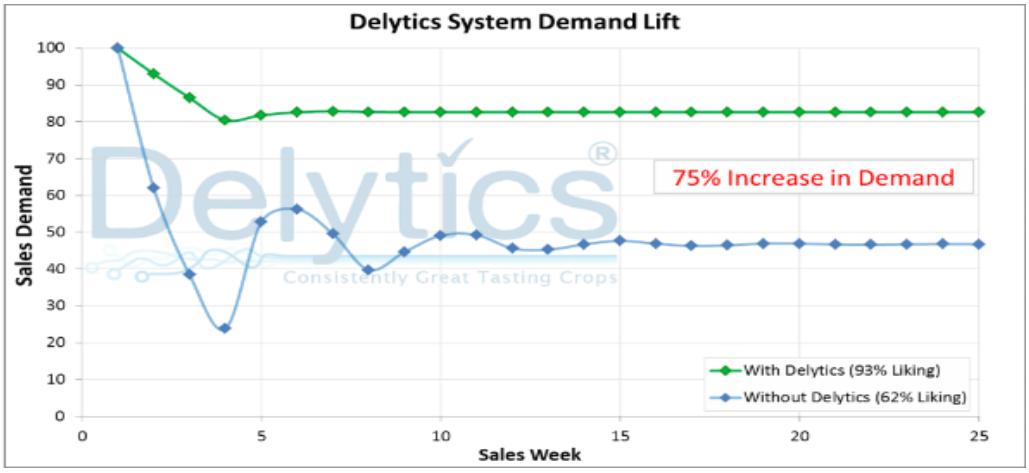


Figure 8: Consumer demand analysis carried out by Delytics for navel oranges comparing the effect of using BrimA (Delytics system) vs previous brix:acid system: source: Delytics website

The current focus is on meeting minimum maturity standards; there is no incentive for the grower to leave fruit on the tree to gain better flavour. Appendix 2 and 3 show the maturity curve for Gisborne navel oranges. Leaving fruit on the tree another 2-3 weeks from the start of the season would push all fruit into the "like" category with a Hedonic score of 6 or more.

If early price incentives could be removed, the consumer would experience a much higher quality eating experience, as without growers pushing to start harvest, early fruit would steadily improve from a Hedonic score of 6, and consumers would experience fruit with much better flavour. It is when Gisborne fruit reach higher maturity that their taste advantage over competing regions is realised.

4.6 Market share

To be in a strong marketing position significant market share is often required. If you are a small part of a large market it is possible to differentiate yourself and define your own category and become a dominant supplier in the niche you have created (Brackenridge, 2018). To be in a position where there is a co-dependency between the supplier and the purchaser, the supplier typically needs over 50% market share (Roach, 2018).

Gisborne navels and their benefits may be well known to a limited few, but to the general public there is "No Connection with the grower, there is No Story and No Brand". You are selling "Just an Orange"; there is no standout features, no reassurance of quality; it is simply an orange!! (Roach, 2018). This is the situation for the vast majority of the navel orange supply, where growers are disconnected from the consumer.

The current industry, with growers selling fruit to Pack-houses/Marketers who on sell to Supermarkets (i.e. through "middle men") in order to access consumers puts the grower a long way from the consumer; by definition, these middle men are traders. Traders are driven by volume, not price or quality; they want to clear volume (Roach, 2018).

Recent developments where growers are becoming increasingly more vertically integrated, is helping connect growers to the market. The downside of this trend in growers doing their own packing and marketing is that their market share diminishes when compared to being part of a larger group packing and marketing through a common channel. Growers going it alone are forming an increasingly fragmented supply.

4.7 Gisborne Citrus Growers Co-op (1999)

4.7.1 The Model *(Sources **(anonymous, 2018)**):*

What happened?

- *Growers with poor returns, poor quality and had no marketing plan.*
- *A Marketer identified that more could be achieved….*
- *Growers formed a collective navel group.*
- *Committed growers drove other growers to sign up and commit supply.*
- *Single marketer was engaged as a marketer.*
- *Single Pack-house was contracted to pack.*
- *Cost savings and consistent grade standards applied.*
- *Full marketing plan developed including the "Sunfirst" brand. Including export.*
- *Grower seasonal pool operated to ensure market supply consistent and all growers shared in market highs and lows.*
- *Harvest maturity standards introduced.*
- *Coordinator for harvesting including shared labour and gear.*
- *Grower returns improved by approximately 50% in first year.*

What didn't work?

- *Those packers and growers outside the group could enjoy the advantage of a managed market and pick the highs. They got paid better and faster than the pool average.*
- *Marketers and packers not involved continued to undermine the navel group.*
- *Marketing companies who were cut out focused on imports from Australia. Free trade with Australia existed so fruit could be brought cheaply and landed in the South Island at lower cost than Gisborne supply.*
- *Navel group supplier contracts were weak and growers got picked off one by one out of self-interest.*
- *The group eventually dissolved.*
- *Free market won over cooperative socialist management as self-interest was put above of collective good.*
- *Too many holes existed in the structure that "allowed other freeloaders to exploit".*

5 DISCUSSION

5.1 Price

Navel oranges can easily be substituted by consumers for other products, be it mandarins or other fruit. Oranges are currently seen as a commodity, with no real differentiation between origin, brands or varieties; at its most simplistic, “an orange is just an orange” to the typical consumer (Roach, 2018). This significantly limits what consumers are prepared to pay. Supermarket data has shown that 65% of consumers are prepared to trade off blemishes against price, in order to get a lower price (Fourie, 2018).

Higher prices in the shoulders of the season, especially early in the season encourage growers to push the bounds of fruit maturity and get it off the tree as soon as possible; this is not beneficial to the industry. Greater coordination of supply, a greater focus on the consumer experience, and levelling out price throughout the season would lift eating quality, and would likely see a lift in average price.

5.2 Quality:

The most attractive feature that can get consumers to purchase Gisborne Navel oranges is their eating quality. To be successful navels must be consistent in their supply and quality, it’s important to understand the consumer, why are they buying navel oranges? (Brackenridge, 2018). Tomatoes, and summer fruit are just two examples of products that have learnt that Consumers want flavour; these crops focused on yield and looks over flavour; and now realise that to be successful flavour is very important (Fourie, 2018).

Leaving navel orange fruit on the tree and delaying harvest for approximately two weeks would typically add 20 points to the BrimA value (see Appendix 2 & Appendix 3); this is sufficient to take the consumer description from “neither like nor dislike” to “like slightly”; and equally importantly this will lift the bar and reduce negative consumer reaction likely to be found from the 25% of fruit in a sample that will fall into the “dislike” category of samples of fruit that just achieve a pass (i.e. 75% of fruit are required to be ≥ 90 . The question should still be asked if this is a sufficient standard. To go beyond a BrimA score of 110 is going to take time that many growers will find unacceptable, however mid-season Navel varieties (such as Parent navels) in the peak of their season are capable of producing outstanding flavour; and with appropriate orchard management lifting the standard would be achievable.

Currently the strategy for most growers is to get a “pass”, and then harvest the whole crop. As each grower consecutively does this same process of meeting minimum standard and picking entire crop, means that internal fruit quality in the market can be very slow to improve as the season progresses. It is not until mid-season until fruit naturally begins to lift in internal quality, and late navel varieties (such as Powell and Barnfield) if harvested at the maturity standard will lower average internal fruit quality in the market, as mid-season varieties (such as Parent) by this time are easily exceeding minimum requirements. Fruit left on the tree continues to improve in flavour beyond the minimum standard, and delaying harvest would lift internal fruit quality in a domino effect across the whole season. (See Appendix 2 & Appendix 3).

5.3 Marketing

It is important to have a strong brand. “Taste is King”, and a strong Gisborne navel brand needs to stand for this above all else. Scale is important for supermarkets; to get a “seat at the table” and have the benefit of a co-dependent relationship with these major outlets having more than 50% of volume in your category is important. If you can’t get over 50% in your category, differentiate yourself so you can dominate your sub category (Brackenridge, 2018).

Currently the citrus category market share in NZ is split with 1/3 Progressive, 1/3 Foodstuffs and 1/3 Independents; interestingly citrus has a disproportionate amount of e-commerce sales at 6%; compared to 4% for most produce (Fourie, 2018).

Having high shoulder pricing to the Navel orange season, especially at the beginning of the season can have a negative effect on the market. Consumers face high prices for fruit that is usually at minimum maturity (at best). Higher early pricing incentivises fruit into the market before it is ready, and encourages growers to get fruit off their trees as early as possible. Consumers who have a disappointing eating experience are then unlikely to repurchase navel oranges for 1 month.

Putting reliably good tasting fruit into the market from the beginning is likely to not only see consumers repurchase navel oranges sooner, it is likely to see consumers purchase more fruit in each shopping experience. To draw any sales away from other products, navel oranges need to taste very good.

Although this report is not focussing on export opportunities, this is a viable option for navel oranges. Currently <5% of the national navel crop is exported, however if sufficient quantity of high quality fruit could be coordinated, there is significant potential to shift volume offshore. NZ can compete on price with Australian navels, we just need the quality (Albers, 2018).

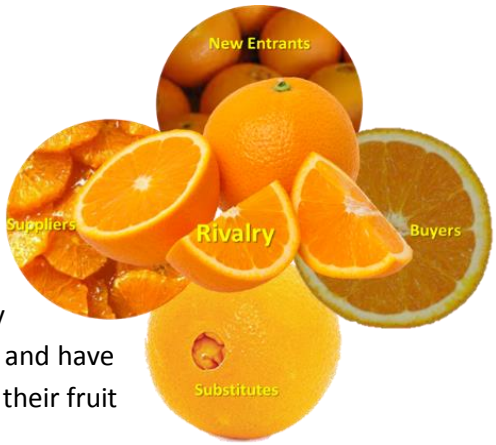
Collaboration on a large scale will be required to export navel oranges in any significant manner, to ensure any export outlets can receive sufficient quantity of a suitable quality, and understand what the NZ Navels have to offer.

> There are good examples of collaboration *“such as The Family of Twelve consists of 12 independent New Zealand wineries focused on promoting Kiwi wine overseas. They join together organise tastings and events in key markets and to get prominent critics, sommeliers and retail buyers to visit New Zealand.*
>
> *Collaboration is a process not an outcome; The outcome is greater value, greater consistency, less volatility, as a consequence of us being far more sophisticated in our value chains and our branding, and therefore less dependent upon commodities. “And the way to do that is through better investment in talent, better awareness of digital, and the utilisation of a far more collaborative approach to market.”* (Oliver, 2015).

True collaboration is likely to be part of any solution for the NZ navel industry; and to get true collaboration requires trust. Bram Smith in Idealog stated:

> *A key part of getting that sort of trust is encouraging people to form personal relationships, he says. "Organisations don't collaborate, people do. So you've got to enable people to form personal relationships and get to know each other. You can't just force people together and expect them to collaborate." (Smith, 2015).*

5.4 Porters Five Forces Analysis of the Industry



5.4.1 Threat of new Entry

It is easy for new entrants to grow navel oranges. Navels are a relatively easy crop to grow when compared with other crops such as Apples, Kiwifruit and Persimmons. The ability of navel fruit to remain on the tree giving large harvest windows, although a great attribute, plays against the Industry as growers have an ability to pick and choose market outlets, and have historically been very price driven when selecting the channel their fruit will go to market.

Some packer/marketers are doing their best to break this cycle by offering loyalty programmes, to get better coordination of supply. When growers bounce between packer/marketers they play one off against the other. This is common with early season maturity where growers scramble for higher pricing and push whatever avenue they can to get fruit to the market; this puts pressure on packer/marketers to accept fruit or have it sold to their competitor.

The current high number of small growers and ease of new growers to enter the navel industry make the threat of new entry a big consideration. Historically the market price at the time, has determined if or when new plantings by either new, or existing growers are made. Current low profitability makes the interest in new entry on any significant scale relatively low; improving financial returns would make this a bigger consideration.

There is a need for a brand with quality at its core, that truly stands for Quality above all else. Market share and economies of scale will help avoid the threat of new entries, however without significant change, it is likely that the Industry will remain very easy for new entrants. Having a brand that consumers identify with, and grows consumer loyalty will reduce the threat of new entry.

5.4.2 Competitive Rivalry

Current rivalry within the navel industry is high. There is little differentiation in the production, packing, or marketing of navel oranges. The average consumer doesn't differentiate between any navel oranges.

A current tendency for growers to become more vertically integrated by conducting their own packing and marketing is likely to increase the level of rivalry in the industry. While vertical integration reduces the "middle men" and puts more margin in the grower's pocket, longer term there is a risk that competition in the market will further erode away the advantages gained.

As more packers and marketers enter the market place the Industry will become more fragmented, and coordination of volume into the market is likely to deteriorate. Individual players in the market need to look for sufficient differentiation to minimise competition against each other.

Getting collaboration of growers to limit competitive rivalry is required. Without differentiation of a brand (from growers to market), rivalry is likely to remain high. There is potential for a brand synonymous with great eating quality and consistent fruit.

5.4.3 Buyer Power

Supermarkets hold a very powerful position in the marketing of domestic produce in NZ. With Progressive and Foodstuffs being the main outlet for NZ produce in the domestic market, they hold a significant amount of power over producers. The greater the number of suppliers negotiating with supermarkets, the more influence they (Progressive and Foodstuffs) each have over controlling the price.

Typically for most produce in the peak of the respective NZ production season, the timing doesn't align with production of the same product in other countries whom NZ import from. Navels have competition throughout their season from either Australia or the USA. This means the NZ market for Navels always has the threat of buyers choosing imported navels over domestically produced navels.

Without any significant point of difference; or even worse, where some consumers may see imported navels as a more reliable eating experience, and often wining consumers over on eye appeal, makes Imported fruit a real threat of substituting NZ production or at least holding down the local price. At no point do NZ navels have the market to themselves; there is always the threat of imported navels.

With the two major supermarkets (Foodstuffs and Progressive) accounting for approximately ⅔ of the market they have huge buying power. To counter the potential negative impacts of this on grower returns, a supplier with sufficient market share (i.e. >50%) of a high quality product of consistent well-coordinated supply is required. The major supermarkets need to see mutual benefit in genuinely collaborating with growers to achieve a mutually beneficial outcome. Co-dependency will not exist to a sufficient level while small to medium growers deal direct with supermarkets.

Small to medium growers may collaborate with supermarkets through a plan to manage harvest volume and joint promotions, however the ability of suppliers to significantly influence price will be limited unless they can achieve sufficient scale. It is unlikely that any one grower will achieve sufficient scale, and therefore like-minded growers working together is going to be a good option.

5.4.4 Threat of Substitution and the Cost of change

There is a wide range of produce in the market that consumers can easily substitute instead of purchasing navels. Whether it be other citrus, or other forms of fruit, the cost to a consumer to substitute a navel orange with a mandarin or an apple is low and very easy for them. Where recipes call for navel oranges, substituting to other fruit may not work, however with the consistent threat of imported navels, the threat of substitution is ever present.

As more growers become vertically integrated, the competition amongst suppliers into the markets will increase the ability of supermarkets to substitute any supplier with another. Unless suppliers differentiate themselves, or join forces, they are in a weak negotiating position, and the ability to extract a reasonable profit is likely to be easily eroded.

With an estimated 20% of the NZ Navel orange supply choosing not to follow the voluntary Industry standard, the fact that a pass on the Industry standard is still likely to have 25% of fruit in a sample that leaves consumers disappointed, and without any significant differentiation by consumers of navel orange origin, varieties or brands; the threat that fruit of poor, inconsistent or unknown quality can easily undermine the benefits gained by putting a higher quality of fruit into the market.

Another threat to the industry is the threat of growers substituting other crops for Navels oranges. The current boom in crops like Apples and Kiwifruit is placing significant pressure on good horticultural land. Growers changing land use from Navel oranges may be seen to benefit the industry by reducing supply; however the reality is that the best growers are more likely the ones to change to more intensive higher returning crops. This may see less pressure of supply on the market in the short term, but longer term it is likely to detract from the Industry by reducing the very fruit that the industry needs in order to be successful. Good growers, producing good fruit are at risk of leaving the navel industry and choosing crops offering greater returns.

Sufficient market share, a good relationship of co-dependence with supermarkets and a product of not only consistent quality but consistently superior quality is required. Gisborne navel oranges can taste better than imported navels. High quality Gisborne navels, although no more convenient to eat than lesser quality navels, can stand alone for their intensity of flavour, not easily challenged by other fruit that may offer consumers a substitute.

Above all else, to avoid easy substitution Gisborne navels must play to their greatest strength, - their ability to pack in very intense flavour not easily rivalled. An Industry standard is a step in the right direction, however if growers continue to accept only just achieving a standard where the consumer “neither liking nor disliking” their product is sufficient; then the threat of substitution will remain very high.

5.4.5 Supplier Power

Many of the costs associated with growing and supplying navels are fixed, however the supply of most horticultural supplies is very competitive. Access to generic chemicals, offers more choice to the grower, and a greater ability to manage costs. The general trend for navel growers, like most other horticultural crops is that supplies are steadily increasing in cost. Pressure on resources such as labour are likely to push costs of production up, but this is not unique to navel production and should have a similar effect over any produce competing with navels.

Suppliers (to growers) aren't seen as a major threat. Typically growers have a choice of supplier, the products and services provided to growers are not specific to navels, and the cost of changing supplier is typically low.

5.5 Industry Options

Why grow navel oranges? Navel oranges don't compete well for consumer convenience, they have the constant threat from imported product throughout the NZ season, there is an increasing amount of competition supplying the market, quality is variable and not controlled, and little coordination of supply in an increasingly fragmented market; but grown well, Gisborne navels can be the best tasting navels in the world, and TASTE IS KING!!!.

Any attempt to improve the returns to growers from Gisborne navel oranges must focus on the natural advantages. The key advantage is the potential flavour, but without reaching their potential, there is no flavour advantage. Focus on flavour.

Consumer awareness of branding is poor, but to develop a successful brand it needs to stand for something consumers can relate to. A successful brand needs to be positioned right with consistent supply, consistent quality and a good story. Build a brand consumers identify with.

Consumers want to understand about their food; the growers need to have a relationship with the consumers. The current model in the navel industry where most growers' relationship with their fruit ends when it reaches the pack-house means they are completely disconnected from the consumer. The consumer is the person eating the fruit, having a relationship that stops at the farm gate, the pack-house door, or the supermarket door is not a relationship with the consumer. Understand consumers and connect with them.

The current navel orange industry is made up of two main regions, Gisborne and Northland with ¾ of production coming from Gisborne. The industry is made up of a lot of small navel orange growers and a limited number of medium to large growers. No single grower has a majority of the supply, there is a need for growers to collaborate.

Supermarkets account for approximately ⅔ of the market sales so have a very large influence over the market. Citrus as a category does have a disproportionally higher % of trade via e-commerce than other produce at approx. 6% (50% higher than other produce sold online), this may make disruptive marketing channels such as fruit straight to consumers, an option to build a strong brand without trying to directly change the current major markets. Look at current market and meet it head on, or use disruptive options and evolve.

5.5.1 Some options for the Gisborne Navel Orange Industry?

a) **Status Quo:** Continue on current path, with some direction from the national body (NZCGI) with voluntary maturity standard; many small growers; an increasing number of packer/marketers; a fragmented market and various parties all doing their own thing; a number of brands, none of which are readily related to by the general consumer.

b) **Large grower base Co-op:** Get as many growers to form a common group (i.e. form a Co-op), set compulsory specifications, work for the good of the group, rather than individual good. Have various packers and marketers working to agreed rules; so as to not compete head on with each other. Use conventional markets and build critical mass to have a collaborative and co-dependent relationship with the major supermarkets. Use grower contracts to secure supply.

c) **Small Grower base Co-op:** Get a few like-minded growers and form a group (i.e. form a Co-op), set compulsory specifications, work for the good of the group, rather than individual good. Depending on size, could start small and evolve, using disruptive marketing channels such as e-commerce; or use conventional markets and build critical mass to have a collaborative and co-dependent relationship with the major supermarkets. Use grower contracts to secure supply.

d) **Compulsory Industry standards:** Lobby growers to implement a compulsory industry quality standard and an industry wide brand. Growers, packers and marketers continue as they currently do, but without some in the industry undermining the efforts of the majority in lifting the consumer acceptance.

e) **Vertically Integrated Company:** Go it alone as a single vertically integrated business (could be formed by several like-minded growers); plant or lease sufficient areas of navel oranges to build critical mass to dominate market share (>50%) and develop strategies in collaboration with the market. Other growers, packers and marketers continue as they currently do.

5.6 SWOT Analysis of Industry options

5.6.1 Strengths

Option a) Status Quo: sticking with the status quo is easy, it doesn't require any change in behaviour. Risks are spread across a very wide group. Through increased vertical integration, growers are becoming closer to the market and their consumers.

Option b) Large grower base Co-op: Is very inclusive, has a large number of growers working together for common good, majority of market share, can influence pricing and quality on sufficient scale to be easily recognised by the general consumer as most fruit in the market is controlled. Large ability to affect volume and pricing in the market very quickly; with sufficient volume and quality on offer, makes it difficult for buyers to substitute. Fast way to aggregate a big volume of fruit and make rapid change.

Option c) Small grower base Co-op: not difficult to start as everyone is like-minded with a similar vision; can get a significant proportion of the production volume together quickly without involving too many people. Good balance between controlling sufficient production and supply, vs taking full control of supply which can threaten the market. Allows market to collaborate with one significant grower group; while still allowing smaller players to do their own thing. Can set standards and work with markets and consumers to ensure market doesn't want to be without them.

Small group of growers, which can easily connect direct with consumers and react to consumer and market wishes. Depending on scale, could choose to start small and use disruptive marketing channels, by using e-commerce. Could team up with existing outlets such as My Food Bag. Starting small with disruptive marketing channels gives the ability to build a brand recognition over time a let growth occur more organically.

Option d) Compulsory Industry standards: If successful eliminates sub-standard fruit from the market, and thereby improves consumer experience. Consumer knows what to expect from local navels.

Option e) Vertically Integrated Company: Full control of supply, without the need for grower contracts. Can respond to market demands quickly. No consensus required amongst growers. Clear line on communication with markets and consumers. All margins belong to the company. Easy to stay close to the consumer. Full control of compliance and traceability. Is heavily invested in achieving a positive outcome.

5.6.2 Weaknesses

Option a) Status Quo: Growers and supply becoming increasingly fragmented; those choosing not to follow the voluntary industry standard undermine a lot of the good work done by the majority. The majority of growers selling fruit to packer/marketers have no contact with consumers. Competition between increasing number of marketers increases downward pressure on pricing. There is a high level of self-interest. Growers who become more vertically integrated erode margins to be increasingly competitive in the market. Supermarkets are disconnected from the grower and the consumer is even further removed.

Option b) Large grower base Co-op: Difficult to get a large number of growers to agree, and even more difficult to keep them all content. Major markets may look for alternative options if they feel their position of power is threatened. Those outside of the group may try and undermine it. Difficult to make grower contracts strong enough to hold growers in the group through any down times. Difficult to control all growers and ensure they are doing what the group agrees.

Option c) Small grower base Co-op: Major market may look for alternative options if they feel their position is threatened by group having too much power. Contracts are difficult to make strong enough to hold group together in difficult times.

Option d) Compulsory Industry standards: Market remains fragmented. Majority of growers continue to be distanced from the consumer.

Option e) Vertically Integrated Company: Need to keep control of overheads. Can be seen as corporate rather than a grower; and consumers like dealing with growers. Large amount of finance required to establish. Risks are owned by the company with little ability to share risk.

5.6.3 Opportunities

Option a) Status Quo: Campaign major markets to set their own compulsory quality standards to remove low quality fruit from that particular market.

Option b) Large grower base Co-op: Strong ability to lift the average performance of growers. Can pool resources and develop common R & D strategies. Can benefit the majority of existing growers.

Option c) Small grower base Co-op: Large enough influence to set standards that can become the new norm for the greater industry, by creating consumer demand that is now expected.

Option d) Compulsory Industry standards: Lift consumer demand, improve prices; open new markets

Option e) Vertically Integrated Company: can respond to situations very quickly.

5.6.4 Threats

Option a) Status Quo: Fragmented market drives prices down to unsustainable levels to point where drastic action is required. Good growers leave the industry in favour of growing more profitable crops and general quality of grower and orchard deteriorates; and subsequent fruit quality and commitment to the industry falls.

Option b) Large grower base Co-op: Supermarkets feel threatened by the power of the group and look for substitution; such as imported navel oranges. Poor governance flowing through to members failing to invest sufficient funds to maintain a healthy business. Members take the benefits, and then pick and choose when to supply.

Option c) Small grower base Co-op: Those outside the group work to undermine the efforts of the group.

Option d) Compulsory Industry standards: Industry not following the standard. Imported fruit not being differentiated to consumers from local fruit.

Option e) Vertically Integrated Company: Can be discounted by markets and consumers for being too corporate. Tall poppy syndrome makes large vertically integrated companies easy targets for negative publicity. Bad growing years can threaten the whole business viability, as it all sits with one company, not spread across multiple growers.

6 CONCLUSIONS

The NZ navel industry struggles to move the full volume produced for a reasonable grower return. Orchard gate returns for growers are close to breakeven. Quality of NZ navels is inconsistent. The industry put in place a voluntary maturity standard in 2016. This voluntary maturity standard is set at a level focused more on reducing negative consumer experiences that ensuring consumers have a good eating experience.

Taste is the one thing that NZ navels can do very well, and the Gisborne district can do it better than anyone else in the world. Why, when Gisborne's one key advantage in navel orange production is taste; is there not measures in place to ensure fruit reaches a level where this advantage is realised? The current voluntary industry maturity standard although improving the eating experience of fruit, does not aim high enough, and the consumer doesn't have any clear way to differentiate between fruit that is above the minimum standard and fruit that is not.

The current industry trend of growers becoming vertically integrated through conducting their own packing and marketing, and bringing themselves closer to the market and the consumer is a step in the right direction. The increasing level of fragmentation in the industry caused by this vertical integration isn't a good long term solution, and with increased competition in supply, the financial margins gained by reducing "middle men" are likely to be eroded over time.

The industry needs collaboration. From growers through to the consumer, the industry needs more collaboration. It needs to set its sights high and work on its key strength of getting as much flavour into each and every fruit that consumers eat. The current voluntary maturity standard identifies the need for the consumer to have a positive eating experience, but doesn't go far enough. The basis of the 2016 industry maturity standard, BrimA is shown to be a good representation of consumer preferences, however the current implementation fails to ensure consumers will enjoy eating NZ navel oranges; the current standard is set too low, and it is voluntary.

No single supplier in the current industry has sufficient scale to lead the change needed in the whole industry. Having scale allows a co-dependent relationship to form between the growers and the markets. The NZ navel industry needs some large scale players committed to the industry; committed through ensuring the best possible consumer experience is realised. Through a commitment to delivering great product to consumers, the ability to improve grower returns across the industry is possible.

There is an important role for independent packers and marketers, the "middle men" of the supply chain, but they need to be much more than "middle men". Current packer/marketers can play an important part in the need for collaboration; in pulling the industry together and enforcing standards. They need an industry good view, by first and foremost focusing on both the needs of the consumer and the grower and getting the two inherently aligned.

Lining NZ fruit up visually against USA fruit, Gisborne navels struggle to compete; the voluntary industry standard aims to try and match the internal eating quality with that of the USA and Australia, when it is possible to aim higher and ensure consumers eating Gisborne navels do get to eat the best tasting navel oranges in the world.

The Gisborne navel orange industry can have a better future; by working together on the clear mission to be supplying consumers the best tasting navel oranges in the world. Where fruit not only reach their potential, but challenge what is currently possible to see how good the consumer experience can actually be.

7 RECOMMENDATIONS

Gisborne navels can have the best flavour. The typical consumer doesn't know this, as many fruit being eaten by consumers is far from being the best in the world. Growers and marketers competing in the NZ market with navel orange volume, most of which is near minimum acceptable maturity, is not going to see any significant improvement in grower returns.

7.1 Where to from here:

- The Industry needs to work together, from Grower through to the Consumer; the Consumer needs to be central to any actions within the industry.
- Without industry hitting "rock bottom" it is unlikely that the majority of growers will agree sufficiently to form a functional Co-op (or other similar group). To get an industry-wide functional group that has sufficient size, to have the scale and coordination of supply, the co-dependency and the influence through to the consumer, is unlikely. A Co-op of a small group of like-minded growers could make significant gains in this industry. Going it alone as one vertically integrated company would require significant investment to gain sufficient market share, and although this has significant merit, a small number of growers working together to get sufficient market share is much more likely. *See section 5.5.1 for detail on business structure options.*
- Getting whole-industry agreement to compulsory standards of a level where consumers can appreciate the potential of Gisborne navels is unlikely. A group of growers are likely to have to pave their own path. This can still have flow on effects across the industry.
- Large markets, such as the two major supermarket groups can play their part, by setting their own standards.
- To get sufficient coordination of supply volume and control, more growers need to work closely together. This can be done through "middle men", but it is important to truly understand the consumer and have a strong relationship with the consumer.

7.1.1 Why do we need to do this?

- Consumers need access to better quality navels if returns to growers are to improve; they need to identify with a brand they can depend on.
- The industry must focus on flavour, and delivering great flavour to consumers. This means competing in the market on flavour not on price.
- Consumers need to be getting great tasting navels reliably, every purchase.

7.2 Is the future Sweet or Sour?

The industry needs growers to be courageous and push for real change. Without disruptive change in the industry consumers are unlikely to get to appreciate the potential of Gisborne navel oranges, and any significant change in grower returns is unlikely. Taste is King, and if the industry can begin to deliver great taste to consumers for every purchase; a sweet consumer experience will have the consumer pay a sweet price.

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10 APPENDICES

10.1 Appendix 1

Orange Maturity Standard May 2017

The maturity standard requires ≥75% of the fruit from a minimum 32 fruit sample to have a BrimA value of ≥90

The equation for calculating the scaled BrimA value for navel oranges:

BrimA = (Brix – (TA*4))*16.5

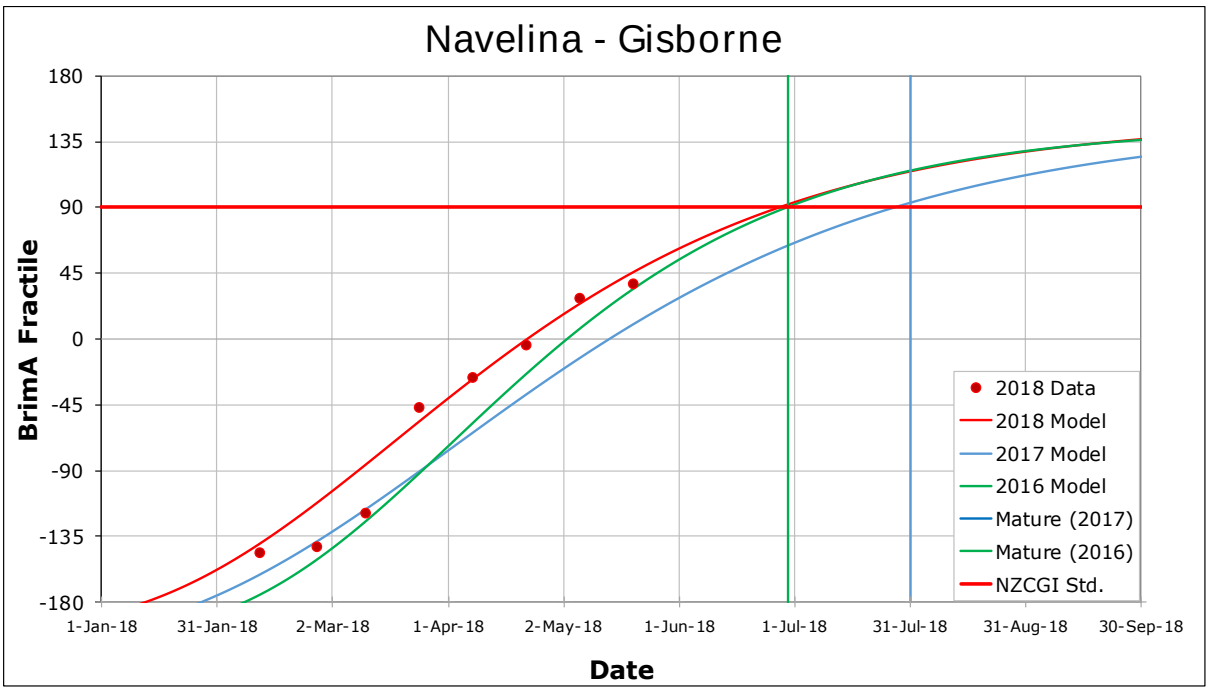
Where: Brix = measured brix value; and

TA = measured titratable acid expressed as % Citric Acid

- Brix and acid is measured for each fruit
- Sampling and testing must follow the Navel Orange Sampling Methodology (Loeffen, Sampling Methodology for Maturity Testing of Navel Oranges - Updated, 2016).

10.2 Appendix 2

Maturity curve of Gisborne navel oranges (Early navel, variety Navelina). (Delytics, 2018)



10.3 Appendix 3

Maturity curve of Gisborne navel oranges (Mid-season navel, variety Parent). (Delytics, 2018)