



AUSTRALIAN AGRIBUSINESS GROUP

MARKET OVERVIEW – THE AUSTRALIAN CITRUS FRUIT INDUSTRY

Independent Assessment – January 2007

Industry Snapshot

- Australia's principal citrus crops include oranges, mandarins, lemons, limes and grapefruit (Section 1)
- The world's largest producer of citrus is Brazil, producing 20% of the total citrus crop worldwide in 2004, followed by the USA (14%) and China (14%) (Section 3)
- Australia is only a small producer on the world scale producing 0.5% of the world's citrus (Section 3 & 4).
- The 2005/06 Australian Citrus Harvest increased by 16% from the previous year to total 722,000 tonnes (Section 4).
- Oranges are the world's most popular citrus crop accounting for 61% of the world's citrus production (Section 3)
- The world's largest exporter of oranges is Brazil with 32% of the market during 2004 (Section 3).
- Australia imports large quantities of FCOJ from Brazil, often displacing the more expensive Australian produced FCOJ (Section 4).
- The largest importers of oranges in 2004 were France, and the UK who each imported 10% of world traded oranges (Section 3).
- Prices for fresh fruit in export markets are generally above those of the domestic market. Prices received by growers for citrus sold into the fresh fruit market are considerably higher than those received for processing fruit (Section 5).
- The Australian citrus industry is looking towards lucrative international markets for future market growth (Section 6).

1 Introduction

The introduction of citrus plants into Australia with the First Fleet in 1788 formed the foundation of today's national citrus industry¹. Australia's diverse climate is ideal for the production of a large range of quality citrus varieties including oranges, mandarins, lemons, limes and grapefruit. Citrus is Australia's second largest horticultural industry, covering approximately 30,000 ha across Australia. Citrus is Australia's largest fresh fruit exporting industry¹.

Rich in antioxidants, phytochemicals, folate, fibre and Vitamin C, citrus fruits have many health benefits. Recent studies suggest that eating citrus fruits can provide protective effects against some types of cancers and various chronic diseases¹.

Oranges are the dominant citrus fruit grown in Australia representing 80% of Australian citrus production during 2005/06 (Figure 1)¹. Navel oranges are predominantly grown for fresh fruit markets - domestic and international, with over 80% consumed as whole fruit. The remaining 20% of lower quality fruit is processed for Frozen Concentrate Orange Juice (FCOJ)¹. Valencia's are best suited to fresh juice production; 55% of this variety is consumed as juice and the remainder as fresh fruit or FCOJ.

In Australia, mandarins (14%), lemons/limes (5.3%) and grapefruit (1.5%) are produced in smaller amounts (Figure 1), with mandarins and grapefruit predominantly consumed as fresh fruit and lemons and limes used primarily for juice.

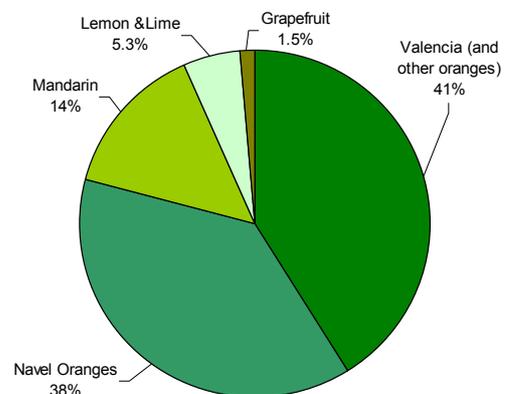


Figure 1 – Breakdown of citrus fruit production in Australia, 2005/06¹.

There are two principle types of grapefruit, white fleshed and red fleshed. The white fleshed variety is the predominant variety in Australia. However since the mid 1990's grapefruit producers have planted the red fleshed variety to meet increased consumer demand for the fruit, which is much sweeter than the white variety².

Growing and marketing Australian citrus involves a relatively long supply chain. From growers, fruit can come in contact with packers, wholesalers, agents, brokers, transport agents, processors, import/export agents and retailers before it reaches the final consumer. This system aids Australia through employment and trading opportunities, but dilutes the producer's price¹.

In 2004/05, \$2.9 million was invested in citrus research and development (R&D) projects, funded through a growers levy, matched by the government and Horticulture Australia¹. The levies are used to cover a wide variety of issues from produce quality to supply chain management and market access.

The growers association, Australian Citrus Growers Inc (ACG) is responsible for the promotion of common interests and financial and environmental sustainability of all Australian citrus growers. They also oversee all research and development and marketing programs as commissioned by Horticulture Australia.

2 Growing Regions in Australia

Seasonal variation in production is one of the major factors influencing the industry. This can create differences in both the quantity and quality of fruit produced.

Citrus fruit is most productive when grown in subtropical or mediterranean climates that have a distinct cold period to induce a dormant phase. Citrus will grow in a wide range of soil types, but prefer slightly acidic soils and require the roots to have adequate access to water and oxygen levels². Hence, citrus in Australia generally requires irrigation to grow, as mature citrus requires 900 – 1,200 mm of water annually.

Typical irrigation systems include sprinklers and drips; however some older orchards still operate on furrow irrigation systems. Due to the rising price of water over recent years, maximising water efficiency is a high priority for most growers. This will continue to be a priority for growers in the future because of Australia's arid climate and the high level of competition between enterprises for irrigation water.

Citrus fruits are grown commercially in all states and territories apart from Tasmania (Figure 2)¹.

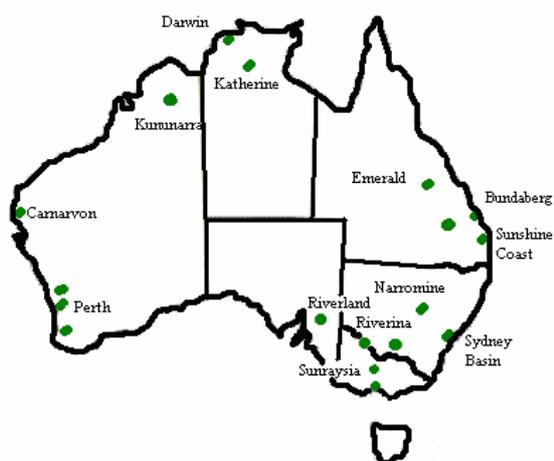


Figure 2 - Major citrus growing areas in Australia.

NSW is the major citrus producing state, accounting for approximately 33% of Australia's 2005/06 citrus harvest¹. South Australia, Victoria and Queensland are the other major citrus producing states accounting for 27%, 24% and 14% of national production, respectively (Table 1).

Variety	NSW	SA	VIC	QLD	WA	NT	Total
Valencia	136	100	50	8	3	0	297
Navel	80	70	105	13	6	0	274
Lemon & Lime	13	7	6	11	1	0	38
Mandarin	6	15	9	67	5	0	102
Grapefruit	1	2	5	1	2	0	11
Total	236	194	175	100	17	0.5	722

Traditionally grapefruit was only produced in southern Australia. However, plantations of red fleshed varieties have recently been established in the tropical areas of the Northern Territory, Western Australia and Queensland in response to increased consumer preference for sweeter varieties of grapefruit³. The climate determines the sugar:acid ratio, greatly influencing the flavour and quality of the fruit. Fruit grown in the tropical regions of Australia tend to have a higher sugar:acid compared to grapefruit grown in the cooler southern climates, causing the fruit to be less acidic and more pleasant to eat³.

Due to the diverse range of citrus growing regions throughout Australia, a wide harvest window exists, with different varieties available throughout most of the year (Figure 3). Australia's counter-seasonal production, to the northern hemisphere, also creates a competitive advantage for the Australian citrus industry when exporting to countries in the northern hemisphere.

	J	F	M	A	M	J	J	A	S	O	N	D
Navel												
Valencia												
Mandarins												
Lemons												
Limes												
Grapefruit												

Figure 3 Harvesting periods of Australian citrus

Many citrus enterprises in Australia produce another type of agricultural product in conjunction with their citrus operations. Smaller growers tend to produce more vegetables and run cattle, while larger growers tend to produce more grapes⁴.

3 International Supply and Demand

3.1 Total Citrus

Citrus production remained relatively stable between 1997 and 2003, with production increasing in 2004 to a record 104.6 million tonnes (Figure 4) ⁵.

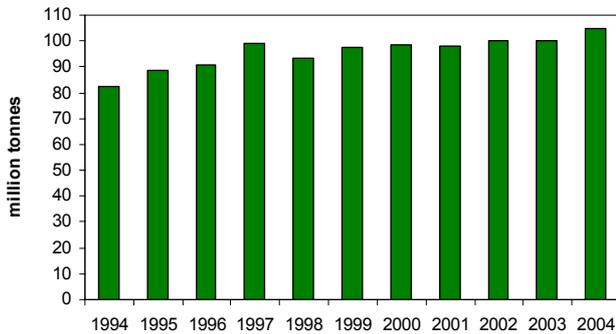


Figure 4 – World citrus production 1994 – 2004 ⁵

Citrus fruits are produced in many countries throughout the world with Brazil producing 20% of the total world citrus crop in 2004. The USA, China, Mexico, Spain, India and Iran are other major producers ⁵. Australia is a minor citrus producer contributing only 0.5% of world production (Figure 5) ⁵.

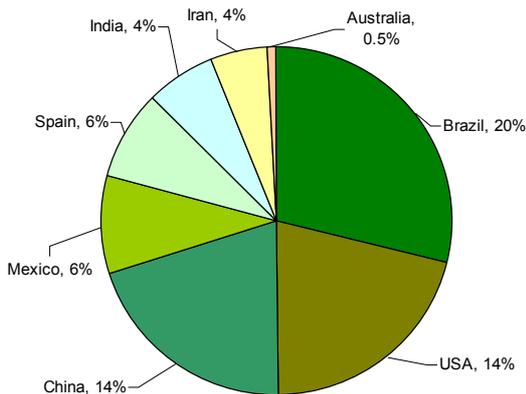


Figure 5 – Major citrus producing countries, 2004 ⁵

3.2 Oranges

Oranges are easily the world's most popular citrus crop. World wide orange production in 2004 was 64 million tonnes, accounting for 61% of global citrus production. Brazil and the USA are the major orange producers, producing 29% and 18% of the world orange crop respectively during 2004. Other leading orange producers are Mexico (6%) and India (5%) (Figure 6) ⁵.

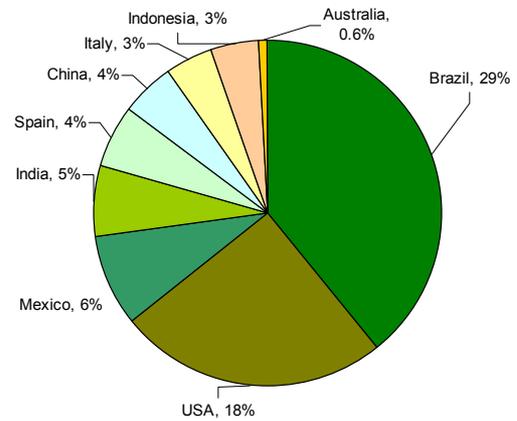


Figure 6 – Major orange producing countries, 2004 ⁵

Only 17.5 million tonnes or 16.8% of global orange production was traded during 2004. These oranges are mainly traded either as fresh oranges, orange juice concentrate or single strength orange juice. Brazil is the major exporter of oranges accounting for 32% of world exports during 2004. Spain (13%), the USA (9%) and South Africa (5%) are also major world exporters ⁵.

The largest importers of oranges in 2004 were European countries, including France and the UK, who each imported 10% of world exports. The USA, Germany and the Netherlands were also major importers ⁵.

3.3 Lemons and Limes

Lemons and limes account for 12% of total world citrus production, with 12.5 million tonnes of lemons and limes produced globally during 2004. There is no dominant producer of lemons and limes, with production occurring in many parts of the world. The largest producers of lemons and limes are Mexico, India and Argentina, accounting for 16%, 11% and 10% of world production respectively ⁵. Australia is a small producer on a global scale, accounting for only 0.2% of world production in 2004 ⁵.

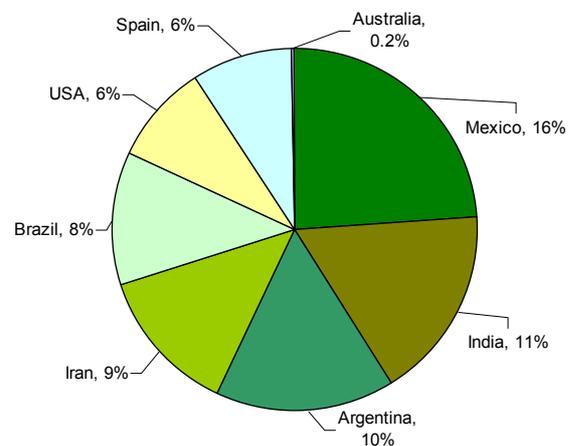


Figure 7 – Major lemon and lime producing countries, 2004 ⁵

Argentina is the largest exporter of lemons and limes accounting for 25% of total world exports. Other major exporters include Spain (19%), Mexico (17%), Turkey (8%) and the USA (5%). The USA is the major world importer of lemons and limes accounting for 39% of imports. Russia (6%), Germany (5%) and France (5%) are also major importers of lemons and limes ⁵.



3.4 Mandarins

FAO (The Food and Agricultural Organization of the United Nations) leads international efforts to defeat hunger. It was founded in 1945 and is a source of knowledge and information on global agricultural production and trade. FAO production and trade data classifies mandarins, tangerines and clementines together. Worldwide production of mandarins, tangerines and clementines increased by 58% between 1994 and 2004 (Figure 8). These citrus fruits account for 22% of total world citrus production⁵.

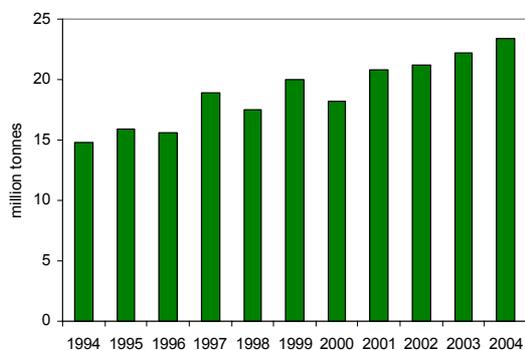


Figure 8 – Worldwide production of mandarins, tangerines and clementines, 1994 – 2004⁵

China is the major producer of these citrus fruits, accounting for 47% of worldwide production during 2004. Other major producing countries include Spain (10%), Brazil (5%) and Japan (4.5%). Australia accounts for only 0.4% of worldwide production⁵.

Spain is by far the largest exporter of mandarins, tangerines and clementines, exporting 45% of the world total in 2004. The main importers are Germany, France and the UK with 13%, 11% and 11% of total world imports⁵.

3.5 Grapefruit

Global grapefruit production accounts for only 4.5% of global citrus production, with annual world production remaining between 4.5 million and 5.5 million tonnes from 1994 to 2004. However, production has been in decline since 2000, with 4.7 million tonnes produced in 2004⁵. This decline has been largely because of declining production in the US, which accounts for 42% of the total world crop (Figure 9)⁵. Production in the US has decreased because of declining consumer demand and major hurricanes that have caused widespread destruction of grapefruit plantations. Currently around 47% of grapefruit produced in the US is red fleshed⁸.

Contrary to what is occurring in the US, grapefruit production in China and South Africa, has been rising annually at a rate of 15% and 10% respectively⁸. Other notable grapefruit producers include Israel, Mexico and Cuba. Australian grapefruit production only accounts for a 0.2% of world production (Figure 9)⁵.

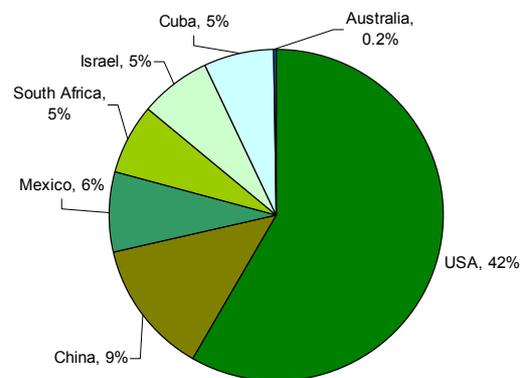


Figure 9 – Major grapefruit producing countries, 2004⁵

In 2004, the total amount of grapefruit exported was 3.9 million tonnes, almost 90% of the world grapefruit production. The USA was the major exporter, accounting for 44% of exports. The Netherlands (13%), South Africa (8%) and Israel (5%) were also major exporters. The Netherlands does not produce grapefruit but is a major re-exporter through its large ports. Japan, Canada, the USA and European countries such as France, the Netherlands, the UK and Germany are the major importers of grapefruit. Australia is both a small exporter and importer in the world market⁵.

4 Australian Supply and demand

4.1 Total Citrus

Over the past five years, Australia's citrus production has fluctuated considerably, with production levels ranging between 500,000 tonnes and 850,000 tonnes. The 2005/06 Australian citrus harvest produced 722,000 tonnes, increasing 16% from the previous year¹.

Exports continue to play a major role for the Australian citrus industry with citrus the largest fresh fruit exporting industry in Australia. Exports peaked in 2000/01 at just over 180,000 tonnes. However due to increased competition in international citrus trade, citrus exports during 2004/05 were 139,520 tonnes or 23% of domestic production¹. Exports have increased over the past fifteen years primarily because of expanding orange and mandarin exports².

Oranges and mandarins are the two major citrus export categories in Australia, with 110,404 tonnes of oranges and 27,355 tonnes of mandarins exported in 2004/05. The top destinations for Australian citrus exports in 2004/05 were the USA, Hong Kong, and Malaysia accounting for 19%, 18% and 16% of Australia's exports respectively. In 2004/05, Australia imported almost 18,000 tonnes of citrus, oranges accounted for 65% of these imports. These were imported predominantly from the USA¹.

4.2 Oranges

Oranges are Australia's most prevalent citrus crop accounting for almost 80% of citrus production in 2004/05. However, Australia is a small player in the global arena, accounting for 0.6% of total world production in 2004/05⁵, producing 571,000 tonnes of oranges¹ (Figure 5).

The production of Valencia oranges in Australia has been decreasing over the last ten years⁴. This is primarily because of changes in consumer preferences and tastes as well as an increase in FCOJ imports. In the past two decades, many producers have replaced their Valencia crops with Navels, in anticipation of lucrative new markets. Navels are better for eating than juicing⁶. This has resulted in an oversupply of Navels oranges in Australia and has been compounded by a lack of access to key markets in China, Japan and South Korea.

5 Price

As with other citrus exports, orange exports increased substantially in the period between 1991/92 to 2000/01. However, since then orange exports have declined from approximately 150,000 tonnes in 2000/01 to 110,000 tonnes during 2004/05, a 27% decrease ¹. Australian orange exports accounted for almost 1% of total world orange exports during 2004 ⁵. Australia also exported 27,692 equivalent fresh tonnes of orange juice in 2004/05, a 16% increase from the previous year ¹.

In 2004/05, Australia imported 12,889 tonnes of oranges predominantly from the US ¹. In the same period, Australia imported 593,313 equivalent fresh tonnes of orange juice, mainly FCOJ ¹. There is increasing consumer preference for this product in Australia, with import volumes for FCOJ increasing 146% since 1995/96. It is difficult for Australian producers to compete with cheaper FCOJ imports from countries such as Brazil, hence these imports often displace Australian made FCOJ.

4.3 Lemons and Limes

Australia is a relatively small producer of lemons and limes accounting for approximately 0.3% (38,000 tonnes) of the total world production in 2005/06. Australian production of lemons and limes has increased in recent years, with a 22% increase over the previous two years alone. This trend is expected to continue with increased plantings of lemons and limes over the past decade. Australia is currently a net importer of lemon and limes, with 904 tonnes exported and 3,911 tonnes imported during 2004/05 ¹.

4.4 Mandarins

Mandarin production in Australia has increased dramatically over the past decade. This has been a direct consequence of export market development and subsequent increased plantings. Plantings increased by approximately 84% from 1993/94 to 2000/01, with just over 2.5 million trees planted by 2000/01 ¹. During 2005/06, Australian mandarin production was 102,000 tonnes, a decrease from the previous year of almost 16%. However, production is expected to increase in 2005/06 to 109,000 tonnes ¹.

Aligned with production, Australian mandarin exports have climbed significantly over the past fifteen years. Australian mandarin exports in 1991/92 were less than 5,000 tonnes through exports during 2004/05 Australia were 27,355 tonnes, almost 20% of total Australian citrus exports. The main destinations for Australian mandarins include Indonesia, Hong Kong, Taiwan and the US, who in 2004/05, accounted for 26%, 20%, 14% and 13% of Australia's exports respectively ¹.

4.5 Grapefruit

Australian grapefruit production remained stable during 2005/06 at 11,000 tonnes. This was after 2004/05 production increased 1,000 tonnes from 2003/04, reversing the general downward trend of the previous seven years. This downward trend was a result of decreasing domestic consumer demand for grapefruit in Australia. However, with production expected to increase to 13,000 tonnes in 2006/07 ¹, it seems as though Australian grapefruit production is on the rise. However, Australia is still only a small producer on a world scale, accounting for approximately 0.2% of total world production ⁵. Of this, red grapefruit contributed 0.5% of the total grapefruit crop ¹.

During 2004/05 Australia imported approximately 556 tonnes of grapefruit ¹. This volume has increased 26% since 2000/01 because of increased consumer demand for red fleshed grapefruit, which is currently in short supply in Australia. Australia is a minor exporter of grapefruits, accounting for 0.2% of worldwide grapefruit exports during 2004 ⁵.

In the future, the amount of fruit that could be potentially exported to Asian countries such as Japan is significant, with our close proximity to the Asian markets giving Australian producers an edge over North American producers.

Note that due to the small amount of red fleshed grapefruit produced worldwide, the breakdown by fruit colour within the figures is not available.

Seasonal variation in the quality, quantity and location of the fruit produced has the greatest impact on the average prices received for citrus. Generally speaking, prices for fresh fruit in export markets are higher than those on the domestic market, with the price received for fresh citrus fruit in the domestic market higher than those received for processing fruit.

Many domestic fresh fruit juice processors offer contracts to growers in order to secure the quantity of fruit needed to meet the demand for fresh juice. Prices for these contracts vary according to the processors guidelines for setting contracts, the on-spot value of the fruit and the world FCOJ price.

Domestically, the proximity of the market to producing areas and transport costs impact heavily on the market price, creating price differences between domestic market locations (Table 2) ⁷. It is important to note that the wholesale price will differ substantially from what the grower receives, due to the packaging, freight, storage and handling costs incurred between the grower's gate and the wholesale market.

Table 2 – Market Prices for Citrus Fruits (\$/carton) ⁷

	Sydney Nov. 2006	Melbourne Nov. 2006	Sydney April 2006	Melbourne April 2006
Navel Oranges	\$12 - \$30 ¹ \$8 - \$12 ²	\$20 - \$28 ¹ \$12 - \$18 ²	\$8 - \$30	USA \$40 - \$45 ¹ USA \$15 - \$22 ²
Valencia Oranges	\$14 - 20 ¹ \$12 - 14 ²	N/A	\$6 - \$12 ¹	\$16 - \$25 ¹ \$8 - \$15 ²
Mandarins	\$10 - \$36 ¹ \$16 - \$24 ²	\$20 - \$30 ¹ \$15 - \$20 ²	\$8 - \$24 ¹ \$8 - \$14 ²	\$30 - \$60 ¹ \$15 - \$30 ²
Lemons	\$12 - \$34 ¹ \$8 - \$16 ²	\$18 - \$28 ¹ \$12 - \$18 ²	\$14 - \$30 ¹ \$8 - \$14 ²	\$20 - \$25 ¹ \$15 - \$20 ²
Limes (5kg trays)	\$60 - \$70 ¹ \$40 - \$60 ²	\$45 - \$60 ¹ \$35 - \$40 ²	\$6 - 14 ¹ \$4 - \$6 ²	\$12 - \$20 ¹ \$8 - \$10 ²
Ruby Grapefruit	\$16 - \$36 ¹ \$8 - \$14 ²	\$18 - \$22 ¹ \$16 - \$20 ²	\$16 - \$24 ¹ \$8 - \$16 ²	\$18 - \$22 ¹ \$14 - \$16 ²
Grapefruit	\$10 - \$24 ¹ \$5 - \$10 ²	\$16 - \$20 ¹ \$10 - \$15 ²	\$16 - \$24 ¹ \$8 - \$12 ²	\$18 - \$22 ¹ \$12 - \$16 ²

¹ = Class 1 ² = Class 2 USA – Imports from the USA

Navel oranges are predominantly consumed fresh and therefore often receive a higher price than Valencia oranges, which are produced mostly for juicing. During 2006, Navels were sold throughout the year, with USA imports sold when Australian navels were in short supply. Valencia's were not sold all year round due to their shorter harvesting season.

Oranges are predominantly packed and sold in 15kg boxes, with the quality and size of the fruit differentiating the price received for the fruit. The price difference between Class 1 fruit and inferior Class 2 fruit can be substantial (Table 2).

Mandarin's are also generally packed and sold in 15kg boxes, with the main bearing on price being the quality of fruit. Mandarins are available from April through to October/November.

Prices for lemons and limes are very dependent upon seasonal demand for the fruit. For instance, April saw heavy supplies of limes domestically causing the price to be substantially lower than when supply is limited in November (Table 2).



Generally grapefruit are sold in 20kg boxes, with the quality of fruit having a large bearing on price. The higher demand for and lower supply of red fleshed grapefruit generally translates into a higher retail price for red fleshed grapefruit compared to white flesh varieties (Table 2). Due to the influence of fruit quality on fluctuations in retail price, it is difficult to conclude whether or not the price for grapefruit has risen or declined from between 2003 and 2006.

6 Future Outlook and Conclusions

The domestic market is a challenging environment for growers, who face increased competition from counter seasonal imports (especially cheap juices), and a static or declining consumption of fresh citrus per capita. Consequently over the past 15 and a half years, the Australian industry has looked towards lucrative international markets.

However, with over 20% of Australia's citrus crop now exported, the industry has become increasingly sensitive to international trends. The growth in citrus production from emerging southern hemisphere countries such as Uruguay, Argentina and Chile has also increased the competition in many of Australia's export markets.

To become more internationally competitive it is imperative that the Australian citrus industry continues to work hard to maintain and grow existing and potential markets, whilst maintaining a high quality product. The industry needs to use superior varieties and rootstocks to extend the marketing season, produce higher quality fruit and higher yielding trees.

Free trade agreements and reduced industry protection have exposed the Australian industry to even greater competition from imports. For example there has been a significant increase in imports of FCOJ over the past decade, causing Australian orange growers to adjust their varieties in anticipation of decreased demand for premium Australian orange juice. Increased domestic competition suggests that for small citrus growers to survive, they must address the issues of scale to be able to compete with cheaper imports.

Other threats for the Australian citrus industry include the shortage of labour for picking and potential pest and disease incursions.

In regards to red fleshed grapefruit, low consumption is primarily due to low consumer awareness and premium prices (due to low domestic supply). Increasing the profile of grapefruit domestically, particularly that of the red flesh variety is crucial for the industry in lifting sales locally. There are many future opportunities for the Australian grapefruit industry in increasing overseas sales, principally into Asia. Decreasing the current wide swings in supply and demand, promoting the health benefits of citrus and getting more value for growers in the supply chain will also help increase the viability and sustainability of the Australian grapefruit industry⁹.

The Australian citrus industry must continue to increase production and enhance their reputation as a reliable supplier of high quality citrus for success in the future. The industry must continue to invest in R&D and adopt new technologies to ensure that this occurs in conjunction with producing high quality fruit that meets consumer's demands and expectations. Along with this, it is vital that the industry endeavours to use market intelligence systems to match Australian citrus anticipated supply with demand so that Australian citrus has a market to go to.

It is imperative that these strategies in improving reliability, production and market access are implemented by the industry so that the citrus industry grows as one of the leading horticultural industries in Australia.

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