

# **A profile of the Australian Citrus Domestic Supply Chain**

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# Australian Citrus Supply Chain Profile

## 1.0 Overview

This paper has been commissioned by the Productivity Commission review of the Australian Citrus Industry. The three tasks that **RETAILworks** was asked to complete are as follows.

1. To identify and describe the major elements in the supply chain for oranges in Australia.
2. To estimate the proportion of the average retail prices for oranges in 2000-01 that accrues to each element in the supply chain.
3. Identify and describe briefly the major trends effecting the structure and relationships between elements in the supply chain and likely future directions.

This paper has drawn on a number of information sources, included other submissions into this review. However, whilst the issue of supply chain margins and incomes is viewed as key information, it is yet to be documented. Therefore the **RETAILworks** experience base, benchmarks and industry network has been drawn on to provide the base data for this paper.

## 2.0 The Elements in the Supply Chain

Diagram 1 shows the elements in the domestic supply chain. Each arrow represents a potential physical flow of product. The broken line, which is centred on dealing with the broker, only represents a transaction and not the physical flow of product. All other arrows represent the physical flow of product.

### Domestic Supply Chain for Fresh & Juiced Valencia & Navel Oranges

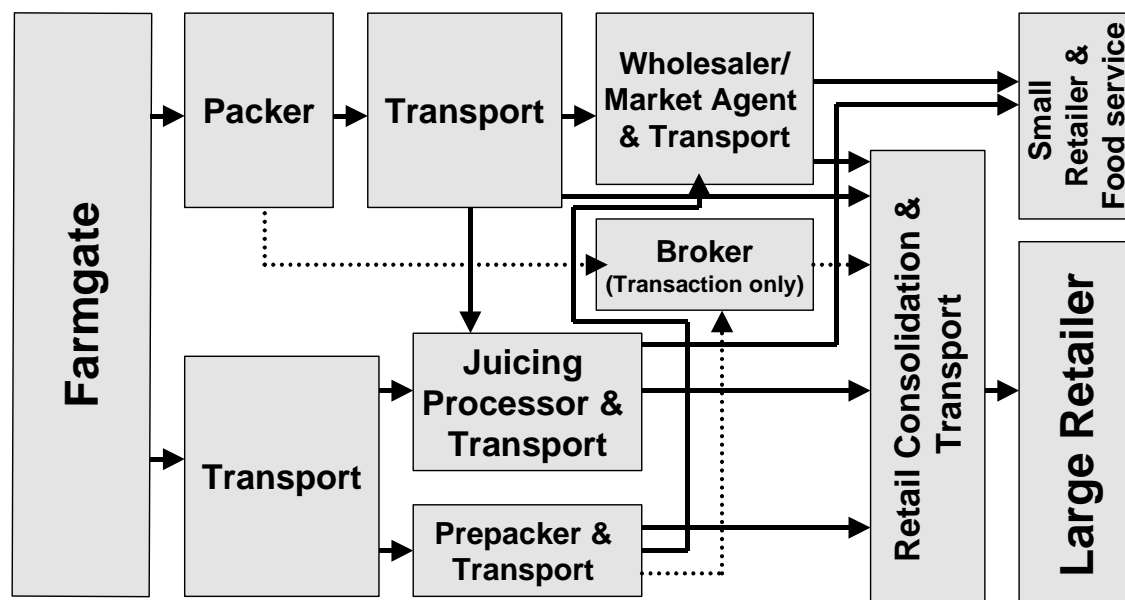


Diagram 1

The export supply chain involves other elements including fumigation, export agents shipping, export and import agents. The export of Australian Citrus can be grouped

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into 2 categories of supply chain, the US and SE Asia. The US supply chain is has the supply consolidated through to one import agent. The SE Asia Supply Chain is by has many suppliers dealing through many import agents.

### 3.0 A description of the major elements in the Domestic Supply Chain

Table 1 lists a description of the major elements and the value that they add.

**Table 1**

Element	Description	Value Added
Farmgate (Grower)	The farmer who grows and harvests the oranges and for some distribution channels will also grade fruit.	<ul style="list-style-type: none"> <li>• Production</li> <li>• Harvesting</li> <li>• Grading</li> </ul>
Packer	The organisation that receives, sorts, grades, packs and provides short-term storage for the packed oranges. This element also coordinates transport and in some instances holds supply contracts with the major juice processors.	<ul style="list-style-type: none"> <li>• QA (Quality Assurance)</li> <li>• Grading</li> <li>• Packaging</li> <li>• Coordinating transport and negotiation</li> <li>• Controlled environment short term storage</li> <li>• Contract supply of juicing oranges</li> </ul>
Transport	The provider of transport to move products between Farmgate, Packer, Juice processor and Pre-packer. This involves moving the product to a specified location, whilst handling the product in specified and monitored conditions and making delivery within a target timeframe.	<ul style="list-style-type: none"> <li>• Controlled environment transport</li> </ul>
Pre packer	The organisation that receives shed graded bins of oranges and then packs product into the net bags. Forward transport is then organised. Some pre packers will buy ungraded oranges and then grade and wax fruit.	<ul style="list-style-type: none"> <li>• QA</li> <li>• Grading &amp; waxing</li> <li>• Prepacking</li> <li>• Transport</li> </ul>
Juice processor and transport	The organisation that converts juicing oranges into the retail packs of fresh orange juice.	<ul style="list-style-type: none"> <li>• Processing fresh oranges into retail and food service ready juice products</li> <li>• Marketing and distribution</li> </ul>
Wholesaler/Market Agent	The organisation that sells product on behalf of the grower or pack house. This usually involves short-term handling and storage of the product. These organisations are typically servicing a wide range of clients. There are indications of trading in product within this element prior to reaching the end purchasing.	<ul style="list-style-type: none"> <li>• Marketing &amp; selling and distribution to retailers and the food service sector.</li> <li>• QA</li> <li>• Controlled environment holding storage</li> </ul>

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Broker	An organisation that coordinates the direct dealing between growers/packers and retailers. These organisations are typically servicing a small number of high volume clients and for the role they play in this type of transaction they don't require hard facilities to handle the oranges.	<ul style="list-style-type: none"><li>• Marketing &amp; selling</li><li>• QA</li></ul>
Retail consolidation and transport	The point at which the full range of retail fruit and vegetable are received and then sorted into retail store orders. A retailer can operate this function or it can be sub contracted out to a Logistics Service Provider.	<ul style="list-style-type: none"><li>• Cross Docking</li><li>• QA</li><li>• Short term storage</li><li>• Controlled environment Transport</li></ul>
Retailer	The organisations that operate retail stores that sell the oranges along with other fruit and vegetables.	<ul style="list-style-type: none"><li>• QA</li><li>• Consumer distribution</li><li>• Promotion</li></ul>

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### 4.0 Proportion of Average Price Accrued by each Supply Chain Element

The estimated proportions of the average selling price that accrues to each element for the distribution of fresh market Valencia oranges from Mildura to Melbourne is estimated as outlined in Table 2 and 3. Two profiles are required as oranges are sold in both a loose and a prepacked form. Best estimates indicate that the loose Valencia oranges product that are retailed by the kg, accounts for 30% of the volume and the packed net bags the remaining 70%.

Retail selling prices have been determined by assessed averages for the period financial year ending June 2001. This information has been obtained from wholesalers, retailers and Industry associations.

Element	Per Kg		Per 18kg Ctn		Per Tonne	
	From	To	From	To	From	To
Farmgate	0.49	0.61	8.81	10.92	489.50	606.62
Packer	0.39	0.33	7.02	5.94	390.00	330.00
Transport to Domestic Market	0.05	0.04	0.90	0.72	50.00	40.00
Wholesale Market Agent or Broker	0.17	0.04	2.99	0.73	165.98	40.69
Retail Consolidation & Transport	0.12	0.09	2.19	1.66	121.72	92.48
Retail	0.57	0.68	10.31	12.24	572.80	680.20
Retail Selling Price	<b>1.79</b>	<b>1.79</b>	<b>32.22</b>	<b>32.22</b>	<b>1,790.00</b>	<b>1,790.00</b>

Element	Per Kg		Per Tonne	
	From	To	From	To
Farmgate	0.19	0.21	192.60	208.94
Transport to Domestic Market	0.04	0.03	35.00	27.50
Net Packing operation	0.10	0.08	100.00	83.00
Wholesale Market Agent or Broker	0.06	0.01	58.50	13.31
Retail Consolidation & Transport	0.04	0.03	42.90	30.25
Retail	0.23	0.30	231.00	297.00
Retail Selling Price	<b>0.66</b>	<b>0.66</b>	<b>660.00</b>	<b>660.00</b>

The basis for how the income is accrued by each element varies. Some are based on a percentage and some are based on a fixed amount. They are as follows.

Percentage base	Fixed amount
<ul style="list-style-type: none"> <li>Wholesale Market Agent or Broker (Calculated as a percentage of the value of the wholesale selling price)</li> <li>Retail Consolidation &amp; Transport (Calculated as a percentage of the wholesale value. Can also be calculated a fixed unit rate)</li> <li>Retail (Calculated as a percentage of the retail total selling price)</li> </ul>	<ul style="list-style-type: none"> <li>Transport to Domestic Market. (per pallet/Bin/load)</li> <li>Packer. (Per carton rate.)</li> <li>Net Packing Operation. (Per Bag/Kg)</li> </ul>

This means that if the selling price is increased, the elements, which generate incomes based on a percentage, will be advantaged. In this model the grower return is calculated as the residual after all other costs, and is therefore advantaged with

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higher retail-selling prices. This flow on advantage to growers, from a higher retail price, is based on the assumption that the various elements in the supply chain maintain a consistent approach to how services are charged and income accrued. However, as outlined in section 4.1 there are a number of influences on how income is accrued that challenge this assumption.

Note that the variation in the income accrued by the Wholesale Market Agent, estimated at 12-15% compared to the Broker estimated at 4-5%, is influenced by the different services these alternatives provide. These differences are outlined in Table 1.

The domestic supply chain for Navel oranges is the same as profiled for the Valencia in tables 2 and 3. However, as a higher proportion of Navels oranges are sold by the kg for a higher retail price than the Valencia orange, the grower returns are higher.

The estimated proportions of the average retail selling price that accrues to each element for fresh juice created from Valencia oranges is profiled in Table 4.

Element	Per Litre		Per Tonne	
	From	To	From	To
	<b>Range of Impacts</b>			
Farmgate	0.17	0.51	80.00	240.00
Transport to processing plant	0.10	0.07	45.00	35.00
Juice Processing, Packaging, Marketing & Distbtn	1.06	0.63		
Retail Consolidation & Transport	0.10	0.13		
Retail	0.55	0.63		
Retail Selling Price	<b>1.98</b>	<b>1.98</b>		

Assumed average juice yield per tonne      470 Litres

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### 4.1 Other impacts on how portions of the selling price accrues to the Supply Chain Elements include:

1. The proportion of retail sales generated by oranges in net bags or oranges sold loose by the kg. The income generated for all elements in the supply chain by these two product alternatives is significantly different. The net bag delivers a lower per kg income and for Valencias, currently generates 70% of retail sales. Therefore, if the proportion of total sales of net bags and or loose product alters it will impact income for all elements in the supply chain, and most significantly on grower returns.
2. The practice of Packers buying oranges from growers at a fixed farm gate bin price, in return for accepting the pack out and on selling risks, as apposed to handling the growers product on a consignment basis. The Packer then seeks to maximise the pack out and sell the market the oranges for maximum return. It is concluded that this practice is more likely to lower than increase average grower returns, as the packer who has the higher market knowledge drives it.
3. Some packers hold contracts with juice processors. This concentrates the supply side negotiating power and has merit in a commodity market. However, the allocation of advantages from this concentration is not visible, as the contractual arrangement between them and growers of this fruit are unknown. If the packers increased their share of the supply to the juice processors it is not clear what would happen to grower returns.
4. The incidences of selling of product between wholesalers before it is sold to a retailer or food service customer. It is understood that either, wholesale margins are taken these transactions, or product is on sold at higher prices. Given the low visibility of trading data the sum effect is difficult to quantify. However, there is every indication that this supply chain path has the effect of decreasing grower returns and increasing retail prices. It could be argued that this is a method of getting smaller quantities of product to many end markets. This situation is very similar what Miandetta Farms<sup>1</sup> first encountered in selling Asparagus into Japan, with unknown trading houses in the supply chain, before the product reached its end market.
5. The frequency of retail price based promotion, which impact volumes sold and averages prices, but also impacts on the retail role for the product and the retail margins it is expected to generate. It is concluded that for Valencia oranges this promotional frequency is decreasing rather than increasing, as the incremental volumes created from promotional activity are seen to have reduced. If a fruit and vegetable product is not promoted, they tend to be treated as a “support line” by the retailer. This results in the product carrying a higher than average margin, to support the promotional activity of other fruit and vegetables. All indications are that this has happened to Valencia oranges at retail. This problem is not as extreme with the Navels oranges, where the promotional activity is seen to be generated incremental volume and is more frequency.
6. Retailers requesting that packers/growers lower prices to enable promotional activity and then investing in effective promotional activity to generate higher volumes. The end resulting is lower grower returns.

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<sup>1</sup> See reference 1 Page 36.

### 5.0 Major Trends effecting the Structure and Relationships in the Supply Chain

1. Increasing competition in the retail sector. The competition between the two major supermarket operators has been constant in the last 10 years. The 2 leading supermarkets now hold 65-70% of the retail market. This has evolved through more aggressive activity, which has reduced the number of independent fruit and vegetable retailers between 1992 and 1999 by 56% from 3,670 to 1,611. Now that the third player Franklins has been broken up and sold to several organisations, the competition for the retail customer is only going to increase. Higher levels of competition in the retail sector will increase the pressure on grower returns as the retailers negotiate for every advantage.
2. Consumer shopping behaviour is pointing to a higher incidence of more frequent shopping trips. Typically these “top up” shopping trips are driven by the need to buy perishable products like milk, bread and fruit and vegetables and or a quick meal for tonight. This increases the strategic retail value of a high quality fresh fruit and vegetables offer, as it is a proven influence on how consumers select a supermarket. This issue causes the same implication as the first point, with higher levels of retail competition increasing the pressure on grower returns, as the retailers negotiate for every advantage.
3. More competition due to higher volumes of alternative fruit products. Most of the summerfruit range of products, including stonefruit and mangoes are projecting substantial increases over the next 2-3 years. Whilst per capita consumption of Fruit & Vegetables has grown steadily in the past two decades from 191kg in 1976-9 to 273 kg 1996-9, it has not increased over the last 5 years. This indicates that increases in consumption of a fruit and highly likely to be gained at the cost of sales of another fruit.
4. These increases will also bring season extensions and more potential overlap with the availability windows for oranges. These products are not an absolute alternative for all orange consumption but they have potential to effect the incremental purchase, particularly if their volume increases force their prices lower. Further compounding this competition is the more attractive promotional profile of these alternative fruits. There is a far higher likelihood that consumers can be stimulated to purchase incremental quantities of stonefruit or mangoes, as apposed to oranges, so these alternative products will also take the advertising exposure.
5. The supermarkets “channel skipping” the wholesalers and buying product direct from growers/packers. The flow on from this direct buying has resulted in market share loss for the wholesale sector and the growth of the broker role. This brings pressure on the conventional wholesale operations, as they loose volumes and economies of scale and have had to survive servicing the smaller retailers and food service.
6. Despite the loss of market share the central market wholesale sector has maintained its strategic leverage as the price setter. Larger proportions of product are being acquired direct at a fixed price, but the balance is still acquired at a price relative to the wholesale market price at the time.
7. The pressure on the wholesale sector has created a higher sensitivity to more open trading information, as more open information could dilute the price setting role and bring visibility to the levels of on selling between wholesalers.



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8. Sharing data is a first principle of improving a supply chain and in this instance it has some substantial barriers to resolve.
9. Those in the supply chain who are combining taking ownership of the oranges with providing a service. The difficulty is in the inconsistency of this approach and the flow on visibility of where value is added in the supply chain. Examples of this approach include:
  - Packers buying stock from growers at a fixed bin price rather than packing and paying the grower based on the grades packed.
  - Pre packers buying product in bins from the grower and then selling a bagged product, rather than providing pre-packing services on a unit basis.
  - Market wholesalers on selling product to other agents, who then sell to the retailers or food service operation.

These approaches can be commercially valid and in cases are adding value. However, it could be argued that some are speculative and or simply adding cost. It is also concluded that grower returns is rarely advantaged from these approaches, as it usually the grower return that is reduced to shift income to other elements. This paper concludes this supply chain would benefit strongly from improved visibility of trading information, which would allow the true value-add of these practices to be profiled.

### 6. 0 References

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