

Sourcing of vegetables by Asian economies - A look at the data

Executive summary

The Australian vegetable industry has made little headway in expanding exports in recent years.

The oft spoken reason for this is the lack of price competitiveness due to high cost structures.

This study examines fresh vegetable import flows into Singapore and Japan.

Australian vegetable growers are prominent in these markets for certain vegetables.

A range of high income/high cost countries also supply fresh vegetables to these markets

Price is not the only factor impacting on sourcing of vegetables for these markets.

Export markets are not easy and require hard work, dedication, consistency of supply and good working arrangements with supply line participants in the country of destination.

There are export opportunities for fresh vegetable exports in the dry markets in Asia targeting higher income earners that the industry should explore more vigorously.

Other cheaper southern hemisphere producers such as Chile and South Africa are absent from these markets so there are also seasonal windows of opportunity that the industry should investigate with New Zealand the most likely competitive threat.

There is also the opportunity to win market share from existing foreign suppliers.

Further research along the lines of this paper is required to identify export opportunities.

The industry needs to also research if there are barriers to export in place that can be removed and what measures the industry can take to assist the development of export markets.

The industry would find it beneficial to look in its own backyard and benchmark off and find out from existing grower exporters how they have succeeded in international markets.

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Introduction

Growth in vegetable exports formed a key plank of the previous vegetable industry strategic plan VegeVision 2020. It has also figured prominently in discussions around development of the current Strategic Investment Plan. There have been some gains, such as the growth of carrot exports to the Middle East, but in general the industry has failed to deliver. Exports last financial year (2010-2011) were \$267 million of which \$164 million were fresh vegetables. Eight years ago in financial year (2002-2003) exports were \$326 million of which \$198 million were fresh.

The vegetable industry has an explanation for this, at best, lacklustre performance. Australian vegetables are non-competitive on export markets due to their high price. This non-competitiveness is caused by factors outside the control of the vegetable industry. High transport costs, high labour costs, costly regulation and in more recent times the high Australian dollar. And yet there are outstanding examples of successful vegetable exporting growers and companies. These growers tell a different story and their success suggests that the factors cited above are not necessarily a barrier to export.

Time constraints meant that this paper had to be narrow in its focus. This paper examines the data on imports of vegetables into leading Asian markets with a view to ascertaining whether there is scope for Australian vegetable growers to win market share from competitors and in particular in ascertaining the significance of price competitiveness in determining the source country. The new funding recommendations contained in the Strategic Investment Plan provide scope to further examine this and other issues that have limited exports and adopt strategies to develop export markets, not only to win market share from other countries but also to expand markets particularly to the expanding middle class in Asia.

The analysis focuses on fresh vegetable imports into Singapore and Japan but could easily be extended to any number of countries. There were a number of reasons for choosing Singapore and Japan.

- Firstly, these two countries are the major destinations for Australian fresh vegetable exports. Last financial year (2010-2011) Australian vegetable growers exported vegetables worth over \$24 million to Japan and \$22 million to Singapore which combined totaled 28% of total fresh vegetable exports.
- Secondly, the fact that exports are significant to these countries shows that at least some Australian vegetable growers have the right formula for success.
- Thirdly, Japan and Singapore are high-income economies where price factors are likely to be of lower significance in determining demand for vegetable imports than in Asian countries with lower incomes and a poorer standard of living.
- Fourthly, the two countries provide a stark contrast with Singapore heavily reliant on imports for its food needs and Japan having a history of being as self sufficient as possible.

Methodology

The focus is on individual vegetables where imports exceeded US\$5 million in 2011. Analysis of the source countries of individual vegetable imports focuses on countries with a market share of at least 4% by value. Establishing a threshold for market share is particularly important in determining the highest and lowest average price of each vegetable because in many instances there are countries that export a small quantity of a particular vegetable and the low market share then produces an extreme or statistically perverse result, such as the highest price by a substantial margin. This might be because of unusually high quality, meeting the needs of a particular niche market, or simply testing a particular market which, if results are encouraging, might lead to bigger exports and probably lower average prices in years to come.

Data is provided in the excel spreadsheets for fresh vegetable imports by value (US\$), quantity (tonnes) and average landed price (US\$ per tonne) for both Singapore and Japan. The source of all data is the Global Trade Information Services/World Trade Atlas. Where Australia meets the criteria of a market share greater than 4% it is highlighted in yellow. For the landed price of individual vegetables the lowest price source country is highlighted in green and the highest price in orange. Market share is examined in terms of the value of imports. Average landed prices of specific vegetables are examined. In many instances there are substantial differences in price between the lowest-priced source country and the highest. While distances and transport costs partly explain the difference in import prices between countries there are undoubtedly several other factors that are relevant in explaining some of the big price differences that are revealed including quality, vegetable characteristics, seasonality and availability.

Singapore

Neighbouring countries in South-East Asia and other East Asian countries such as China are the main sources of Singapore's vegetable imports. This is unsurprising insofar as these countries benefit from significantly lower labour costs than countries such as the USA, Australia, and New Zealand and their geographic proximity has a favourable impact on keeping transport costs down. Nonetheless high-income advanced economies have achieved success in developing export markets into Singapore despite the perceived disadvantages especially in respect to price.

Malaysia is one of Singapore's main trading partners. In examining Singapore's imports of vegetables from Malaysia it is not possible to determine whether all of the vegetables are grown in Malaysia or whether a proportion of them are grown elsewhere, imported into Malaysia and then re-exported.

The initial part of the analysis is to sift the data and identify the leading sources of vegetable imports into Singapore.

There are 17 different vegetables where imports into Singapore exceeded US\$5 million in 2011. Malaysia is the leading supplier of 8 of these vegetables, China 4 of them, followed by the USA (3), Australia (1), and Vietnam (1).

Vegetable imports not widely sourced

Despite an open economy vegetable imports into Singapore are not sourced widely. In the case of 3 vegetables, the market share of the main supplier country exceeded 80% (Malaysia with 2 vegetables and China with 1). For 8 vegetables, the market share of the main supplier country exceeded 60% (Malaysia and China with 3 each and Australia and the USA for a single vegetable each). For 13 of the 17 vegetables the market share of the leading two countries combined exceeded 75% while the market share of the leading three countries exceeded 75% for 16 of the 17 vegetables (with three countries having a market share of 74.7% for the single exception!).

Price variations

There are substantial variations in price between the lowest and highest-priced suppliers of imported vegetables, with the highest-to-lowest price ratio ranging from a low of 1.3 for eggplants to a high of 21.4 for spinach. It is not possible to quantify the factors responsible for all the big price differences, but it is a clear indication that price is not always the major factor in determining success in exporting vegetables to Singapore. Imported vegetables with a highest-to-lowest price ratio below 2.0 in 2011 are eggplants (1.3), cauliflowers (1.5), chillies (1.6), capsicums (1.7), cabbages (1.8), cabbage lettuce (1.7). At the other end of the spectrum, vegetables where this ratio is high, exceeding 5.0 are lettuce (5.9), salad beetroot, salsify, celeriac, and radishes (10.7), although this high ratio probably reflects the fairly diverse range of vegetables grouped together in a single import category, and spinach (21.4). Even at the lowest price ratio of 1.3 for eggplants the price difference per tonne is US\$218. For all vegetables there is a market for highly priced vegetables even in those vegetables where the bulk of the market is supplied by the cheapest source country.

High income countries penetration

There are 10 vegetables where at least one of the suppliers is a high-income country; in addition to Australia, the USA (4 vegetables), Taiwan (3 vegetables) and Japan, South Korea and the Netherlands (each with one vegetable) achieve a market share of at least 4% in the individual vegetable import categories.

Australian vegetables penetration

Australia has a market share of at least 4% for 5 of the 17 vegetables imported into Singapore with a value exceeding US\$5 million. Australia had the highest price for 3 of these 5 vegetables in 2011. This could be due to higher production costs in Australia or higher transport costs in getting vegetables to Singapore or because of the strength of the Australian dollar against the US dollar in 2011 or a combination of all three.

Australia's highest market share by value in 2011 was carrots (66.2% of the total), followed by broccoli (33.7%), lettuce (18.9%), asparagus (16.6%), and celery (4.3%).

Carrots

Australia is Singapore's main source of carrots with its market share fairly steady around 66-73% over the past five years. It remains well ahead of China, the second most important supplier of carrots, whose market share has also remained fairly steady between 18-22%. Australia has achieved considerable success in this market despite prices significantly higher than carrots imported from China. Australian prices were approximately 70% higher than Chinese prices in 2008 and 2009, and approximately 86% higher in 2010 and 2011.

More detailed examination of Australia's carrot exports to Singapore shows that the majority of Australian exports are shipped from Western Australia, which has accounted for approximately 90% of the total over recent years. The dominance of Western Australia is probably evidence of its specific advantage in terms of location and shipping costs in respect of exports to countries in South-East Asia such as Singapore.

Broccoli

Imports of broccoli from Australia rose by 78% between 2007 and 2011 ahead of a 60% rise in total imports of broccoli during this period indicating some increased penetration of the market over this time period. China is the leading supplier of broccoli, with 58% of the market in 2011. Australia's market share has fluctuated between 26-37% over the past five years despite average prices being more than double those of China throughout this period. Australian prices rose by almost 11% between 2010 and 2011, in contrast to a 4% decline in the average price of broccoli imported from China, with average Australian prices approaching 2.5 times the level of average Chinese prices in 2011. Increased penetration of broccoli has occurred despite reduced price competitiveness.

Lettuce

Australia has retained second place, to Malaysia, in the market for lettuce over the past few years, but has lost market share in this expanding market with its share of the total declining from over 28% in 2007 to 19% in 2011. Average prices of imports from Australia, which were 4.4 times higher than those from China, the lowest-priced supplier in 2009, were 6.3 times higher in 2011, while Australia's prices relative to those of Malaysia, the main supplier, rose from 3.2 to 4.0 between 2009 and 2011. In the case of lettuce price competitiveness may be a factor in explaining the loss of market share.

Lettuce imports from Australia have a different pattern to carrots. Lettuces are air freighted principally out of Victoria (accounting for 80-90% of the total in the past few years) although the original state source becomes more blurred in the eastern states where there is more flexibility in determining transportation routes with some vegetable exports initially freighted between states.

Asparagus

A similar pattern is evident in regard to asparagus in respect of market share, but not in respect of price comparisons. Australia has maintained third position in recent years behind Thailand and the USA, but its share of the market by value slipped from 25.5% in 2007 to 16.6% in 2011. Average prices of imports from Australia rose by 47% in cumulative terms over this period, slightly below the 52% increase in average prices from all countries over this period. Prices of imports of asparagus from Australia were just 7% above the average import price

from all sources in 2011, with prices of imports from the US and Peru (the fourth most important supplier) consistently above those of Australia while Thailand supplies asparagus at prices well below those of all the other main suppliers. In terms of quantities supplied Thailand has consistently been the main supplier of asparagus over recent years, but despite its relatively low prices it has actually lost market share to countries supplying asparagus at higher prices and was overtaken by the USA in terms of market share by value in 2010.

Imports of vegetables from the US

These are examined to see whether the US's success in exporting particular vegetables to Singapore may indicate opportunities for Australian growers of relatively high-cost vegetables.

Celery

The US has been particularly successful in supplying celery to Singapore, achieving a dominant position in this market with a market share of 64-74% over the past 5 years. US growers have succeeded in this market despite prices for their product exceeding those of Chinese growers, who have been the second most important supplier in four of the past 5 years, by a margin of 38-68% over this period. There is no particular seasonal pattern evident with US exports of celery to Singapore spread fairly evenly throughout the year.

Cabbage lettuce

The US was also in first position in supplying cabbage lettuce to Singapore in 2011 although there was little difference in imports by value between the US, with 28% of the market in 2011, only just ahead of China and Malaysia each with a share of approximately 27%. US prices have consistently exceeded those of China by around 30% over the past five years and China's competitive advantage helped to secure its position as the leading supplier of cabbage lettuce to Singapore in 2011 when comparisons are measured in terms of the quantity of imports rather than their value.

Japan

Despite the contrasting approach to agriculture trade between Singapore and Japan individual vegetables into Japan like for Singapore are sourced from a limited range of countries only slightly more so in Japan than in Singapore.

The analysis shows that there are 15 vegetables imported into Japan with a value of at least US\$5 million. China is the main source country for 6 vegetables, the USA for 4 vegetables, and Italy, Mexico, New Zealand, Oman, and South Korea for one vegetable each.

In the case of 6 vegetables, the market share of the main supplier country exceeded 80% (USA with 3 vegetables, China with 2, and Oman with 1). For 9 vegetables, the market share of the main supplier country exceeded 60% (China with 5, the USA with 3, and Oman with 1). The market share of the leading two countries combined exceeded 75% for 14 of the 15 vegetables; the exception was asparagus where the leading two countries accounted for 57% of the total import market by value with five countries (an unusually high number in Japan and a reflection of pronounced seasonality) providing 92% of asparagus imports.

Australia has a market share of at least 4% for 3 of the 15 vegetables imported into Japan with a value exceeding US\$5 million. New Zealand has a similar profile to Australia insofar as it also has a market share exceeding 4% for 3 vegetables.

There are 13 vegetables where at least one of the suppliers is a high-income country; in addition to Australia and New Zealand, the USA (6 vegetables), Taiwan (4 vegetables), South Korea (3 vegetables) and Canada, France, Italy, the Netherlands, and Oman (each with one vegetable) achieve a market share of at least 4% in the individual vegetable import categories.

The variations between the highest and lowest prices for vegetable imports into Japan are much smaller than in Singapore, with the highest-to-lowest price ratio ranging from a low of 1.1 for peas to a high of 18.4 for truffles where quality varies significantly and is of paramount importance for this luxury vegetable. Nine of the 15 imported vegetables have a highest-to-lowest price ratio below 2.0 and for 3 vegetables there is only a single overseas supplier so the concepts of highest and lowest are not applicable. Apart from the exceptional case of truffles, the only vegetables where this ratio exceeds 2.0 are beans (2.7) and matsutake mushrooms (2.3).

Penetration of Australian vegetables

While there are small quantities of exports of Australian vegetables there are only three which meet the criteria established in the methodology section of this paper. Only one is a levied vegetable.

Asparagus

The largest market share that Australia has in Japanese vegetable imports is for asparagus. Although a vegetable outside the vegetable levy it is an interesting case study that can provide guidelines for an export development strategy for levied vegetables.

Australia accounted for 18% of Japan's imports of asparagus in 2011, in second place behind Mexico, which had a market share of approximately 39%. Imports of asparagus from Australia of US\$14.9 million were down by 21% from US\$18.9 million in 2010, the strongest performance in the past five years. Prior to 2011, Australia's share of the market had been fairly steady in a 23-25% range during 2007-10. The loss of market share in 2011 was probably largely due to a strong rise in the price of asparagus from Australia. Average import prices rose by 11.3% in 2011 to US\$6680, but Australia prices were up by 20.2% to US\$8460 when they were 56% above the price of imports from Mexico, the lowest-priced supplier.

A significant feature of this market is its seasonal nature. Imports of asparagus from Australia are concentrated mainly in the final quarter of the calendar year. In 2011, 74% of asparagus imports from Australia were in the fourth quarter, with the remainder in the third quarter and no imports in the first half of the year. This seasonal characteristic is by no means confined to Australia. Imports from Peru, another southern hemisphere supplier of asparagus, are also concentrated in the final quarter of the year, which accounted for 64% of the total in 2011 with the remainder spread fairly evenly throughout the rest of the year. Imports from Mexico are concentrated in the first quarter of the year and those from the US in the second quarter. Of

Japan's main suppliers of asparagus, Thailand is the only country where there is not a pronounced seasonal pattern to this trade.

Australian asparagus growers have been adept in exploiting their southern hemisphere location and seasonal opportunities to establish a market window. It is only the recent emergence of a competitive threat from another southern hemisphere producer, Peru which is impacting on this market.

Carrots

Australia was Japan's fourth largest supplier of carrots in 2011, accounting for 5.1% of total carrot imports worth US\$44 million. Total carrot imports rose by 129% in cumulative terms between 2007 and 2011, with imports from Australia growing by 114% over this 4-year period.

China is the main source of imported carrots accounting for 75% of the total in 2011, but with large fluctuations from year-to-year with its share over the past five years ranging between a peak of 82.5% in 2007 and a low of 49.5% in 2008. Imports of carrots from New Zealand have consistently exceeded those from Australia over the past few years and accounted for 10.5% of total carrot imports in 2011. The third largest supplier, accounting for 8.3% of the total in 2011, was Taiwan, but performance is volatile with no imports from Taiwan in 2007, but a strong performance in 2008 when Taiwan supplied 24% of Japan's imported carrots and was second to China. The highest-priced imports in 2011 were from New Zealand with an average price of US\$880 per tonne, 76% above the average Chinese price of \$500 per tonne. Australian prices were slightly below New Zealand ones at US\$860 per tonne in 2011, but Australia consistently had the highest prices between 2007 and 2010.

Truffles

Truffles from Australia are also a non vegetable levy vegetable that meets the criteria of a market share greater than 4%. The Australian truffle industry is a relatively new industry targeting a niche market and therefore an interesting case study. Japanese imports of truffles from Australia rose from US\$50,000 in 2007 to US\$360,000 in 2011 when Australia accounted for 5.1% of total truffle imports by value. As already noted there are huge differences in average prices of imports of truffles with those from Australia averaging US\$1.36 million per tonne in 2011, more than 18 times the average price of truffle imports from China of US\$74,000 per tonne. Such massive differences produce a substantial divergence between the quantity and value statistics for this trade. China supplied 60.7% of Japan's imports of truffles in 2011, but accounted for only 11% of imports in US dollar terms. In contrast the second major supplier by quantity was Italy, with 28.5% of the total in 2011 but the clear leader in terms of US dollar value with a share of almost 60% of the total in 2011.

While the specialist market for truffles has unusual characteristics due to the particularly marked differences in quality from different sources and can be considered a special case it is an example where catering for specialist markets can reap significant rewards.

Vegetables imported from other high income countries

Pumpkins

New Zealand is Japan's main supplier of pumpkins with a share around 60% over recent years although this dipped to 51.4% in 2011. New Zealand shipped almost 66,000 tonnes of pumpkins to Japan in 2011 valued at over US\$47 million. The landed price of New Zealand pumpkins are consistently below those of Mexico, the only other major supplier of pumpkins, over recent years. This trade has distinct seasonal characteristics with 60% of imports from New Zealand in 2011 falling in the first quarter and the remainder in the second quarter. The seasonal pattern is not as pronounced in Mexico with imports spread over 3 quarters in 2011 with the peak occurring in the final quarter with 49% of the annual total.

Broccoli

The USA accounted for 90-100% of Japan's broccoli imports during 2007-2011 despite prices exceeding those of broccoli imports from China by 28-45% during this period.

Cabbage Lettuce

The US and Taiwan are the only significant suppliers of cabbage lettuce supplying 99% of the market in 2011. Taiwan's prices have consistently been below those of the US over the past 5 years, although there have been significant variations in the scale of the price divergence from year-to-year. A characteristic of trade in cabbage lettuce is its pronounced seasonal pattern; imports from the US are concentrated in the second half of the year with this proportion hitting 80% in 2011.

Sweet peppers (Capsicum)

A clear seasonal pattern is also evident in exports of sweet peppers to Japan. In this example the three suppliers (South Korea, the Netherlands, and New Zealand) are all high-income economies and price differences between them are smaller than for many other vegetables (prices of the relatively high-cost Netherlands were 35% above those of low-cost South Korea in 2011). While the seasonal pattern of imports from South Korea, the main supplier, is not especially pronounced, imports from the Netherlands are with 83% of the 2011 total concentrated in the third quarter. This appears to have presented an opportunity for New Zealand with its imports concentrated in the first and last quarters of each year; 83% in 2010 and 86% in 2011.

US dominant in other vegetable imports

In addition to broccoli and cabbage lettuce, the US is the sole supplier of celery to Japan and provided more than 98% of chicory imports in 2011.

Kiwis taking advantage of seasonality

Pumpkins are not the only vegetable where New Zealand has taken advantage of seasonal patterns in capturing a share of vegetable exports to Japan. New Zealand was Japan's second biggest supplier of carrots in 2011, albeit with a market share of 10.5%, well behind China which provided 75% of Japan's carrot imports last year. Imports of carrots from New Zealand are concentrated in the first half of the calendar year when supply from China is at its lowest. The seasonal opportunity available to southern hemisphere countries in some vegetable markets can help offset the disadvantage they usually have when the prices of their vegetable exports are compared with those of low-cost Asian producers. In the case of carrots, for example, average New Zealand prices in 2011 were 76% higher than those of Chinese growers.

Conclusions and recommendations

Some Australian vegetable growers have successfully built markets in Singapore and Japan and are among the leading sources of imports for several vegetables. This success has been achieved despite the price of vegetable imports from Australia often significantly exceeding the price of imports from lower-cost and geographically-closer countries in East Asia, with Australia the highest-priced source of vegetable imports for some vegetables. Australia's success, albeit in a relatively small number of vegetables, is clear evidence that factors other than price are important in achieving success in Asian vegetable markets. Other high-income countries, such as the USA and New Zealand, which also typically supply vegetables towards the high-end of the price spectrum, provide further evidence that price is by no means the sole factor in determining success in Asian vegetable markets. If price was the determining factor then Singapore and Japan would not source any vegetables from Australia or other high income countries and one would suspect that the trade would be dominated by China and other low cost producers. The fact that this is not the case suggests that other factors such as quality, reliability, availability and good supply line connections are also important in determining the source of vegetable imports in these countries.

The particularly-pronounced seasonal availability of certain vegetables provides market opportunities and windows of opportunity. Seasonality seems to be both a reason for the success of southern hemisphere growers exporting to Japan and Singapore, as well as clearly a major constraint on making further inroads in not being able to supply these markets beyond a few months each year. It is interesting that it is growers in Australia and New Zealand that have taken the lead in filling these gaps. In the case of imports into Japan and Singapore there has been no penetration from Chile or South Africa, other leading growers of vegetables in the southern hemisphere. The only other southern hemisphere country that appears is Peru in exporting asparagus to both Japan and Singapore.

This study shows that there are examples of highly priced vegetables finding a market in these Asian economies. There are also examples of growers being adept at exploiting windows of opportunity in respect to seasonal conditions and positioning product well in relation to competitors. Price is a factor but not necessarily the determining one. Some anecdotal feedback from successful grower suppliers to these markets, exporters and other industry participants garnered in the course of research for this paper suggests that the low level of exports from the Australian vegetable industry has more to do with attitude rather than price. Export development requires a focused approach, money, marketing, the development of supply line connections in overseas markets, consistency of supply and a range of other factors.

The Australian vegetable industry would do well to do further research into this issue as well as research into possible market penetration through either taking market share from other high income countries or expanding into the dry markets of Asia where the expanding middle class is increasingly shopping in.

Sometimes the answer to the question asked is close to home. Rather than lamenting the inability to compete internationally the vegetable industry might turn to asking already successful Australian vegetable growers in export markets the secret of their success.