Abstract

An analysis is conducted for the Australian table grapes value chain to determine the chain’s performance. The focus is on exports to the Japanese market, which has been open for Australian table grapes since 2014. Even though very recent, Australian table grape exports to Japan have expanded substantially and are predicted to become an important component of Australian table grape exports. Examining the value chain will help to expand table grape exports, promote its production and consequently contribute to the horticultural industry’s growth. The major constraint to the chain’s performance is concluded to be a lack of information-sharing networks. Some potential interventions are suggested, but further analysis will be required by gathering all information related to the chain, which is currently difficult to access.

Key words: Value chain; table grapes; Japan; chain integration

Introduction

Table grapes were Australia’s highest value fruit export in 2015-16 and the trade had grown steadily in the preceding five years (Smith and Cameron, 2017, p. 75). Australia was the tenth largest table grape exporter in 2016 to 2017 (United States Department of Agriculture, 2017a).

The Japanese market as an export destination for Australian table grapes is dramatically expanding after being opened to Australia in 2014. By 2015-16, the Japanese market had become the fourth largest trade destination for Australian table grapes. The Japanese market is seeking high quality products. That is regarded as providing significant potential for Australian growers since they can supply quality grapes but do not have the price competitiveness, driven by cheaper labour cost and lower input price, that international competitors such as Chile, South Africa and Peru have (Australian Table Grape Association Inc., 2016).

In the Japanese market, Chile and the United States, which were the world’s first and third largest table grapes exporters respectively in 2016-17 (United States Department of Agriculture, 2017a), have shared the market because of holding exclusive and much earlier rights to access the market (Japan Customs,
2016, p.2). As a later entrant, Australian table grapes are required to achieve greater penetration into the Japanese market and to define competitive advantages compared with these existing competitors.

In this paper, the value chain map is drawn to visualize the whole value chain flow. By examining the value chain of table grapes, the industry in Australia can better understand how they can achieve further improvement of their business under highly competitive conditions. The overall analysis is adapted from Chopra and Meindl (2013). Particularly, the six logical and cross-functional drivers of supply chain performance are examined.

The Horticulture Sector and the Fruit Industry Sub-Sector

Australia’s agriculture shares 2.2 per cent of the gross domestic product (GDP) and employs 0.3 million workers in 2015-16 (Department of Industry, Innovation and Science, 2017, p.40). Although Australia accounts for less than 3 per cent of international food trade, Australia’s agriculture sector is export-oriented and feeds three times the country’s population (Australian Trade and Investment Commission, 2017a, pp.3-4).

The horticultural sector, which excludes wine grapes, is the third largest agricultural sector following meat and grains. The gross value of horticultural production was estimated in 2014-15 at $8.73 billion and more than 85 per cent of it, about $7 billion, was sold into the domestic market (Department of Agriculture and Water Resources, 2017a). Potatoes, oranges, tomatoes, apples, and onions were the top five production volumes in the horticulture sector in 2013-14 (Department of Agriculture and Water Resources, 2017b). In 2012-13 approximately 56,700 people were employed in the horticultural sector (Department of Agriculture and Water Resources, 2014, p.49). Unlike the export-oriented agricultural sectors, such as beef and grains, the horticultural sector’s production is highly dependent on domestic demand (Australian Trade and Investment Commission, 2017a, pp. 18, 20, 25). To further expand the horticultural sector in terms of production and employment, it is therefore necessary to expand international market opportunities.

As a sub-sector, the gross value of fruit and nut production, excluding wine grapes, was forecast to increase to $3.7 billion in 2016-17, continuously rising from 2013-14. In the five years to 2015–16, fruit exports’ total value increased from over $500 million to $1.1 billion (in 2016–17 dollars), following a decade of decline between 2000–01 and 2009–10 (Smith and Cameron, 2017, p. 74; Moir, 2016, p. 87). On the basis of these data, fruit comprises most of the horticultural sector’s exports, as Table 1 summarizes.

Fruit exports are expected to rise from $1.2 billion in 2016–17 to around $1.5 billion (in 2016–17 dollars) by 2021–22, because of the expected depreciation of the Australian dollar and improved export opportunities in Asia, which is driven by the scheduled tariff reductions under free trade agreements with China, Japan and the Republic of Korea (Frawley, Howden and Zammit, 2017, p.18; Smith and Cameron, 2017, p. 74). Recently, increased water availability positively affected fruit production and exports from 2011-12 to 2014-15. Furthermore, changes in diet and the increasing incomes in Asia’s middle class have also supported the demand expansion for Australian fresh horticulture products. Most Australian fresh fruit exports in 2014–15 went to Asia (Hong Kong, Indonesia, Singapore, China) and the United Arab Emirates. However, it needs to be noted that the fresh fruit trade has been affected by some extreme climatic events such as droughts or cyclones, which resulted in lower levels of production.
and exports. The Australian products’ competitiveness in the international market is also affected by the exchange rate (Smith and Hogan, 2016, pp. 116, 117).

Table 1. Sector analysis summary

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Agriculture</th>
<th>Horticulture, excludes wine grapes</th>
<th>Fruit and Nut</th>
<th>Fruit</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>2.2% (2015-16)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Employment</td>
<td>0.3 million (2015-16)</td>
<td>56,700 (2012-13)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Production value</td>
<td>-</td>
<td>$8.73 billion (2014-15)</td>
<td>$3.7 billion (2016-17)</td>
<td>-</td>
</tr>
<tr>
<td>Domestic consumption</td>
<td>-</td>
<td>More than 85% of the production, about $7.4 billion (2014-15)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Export</td>
<td>-</td>
<td>About 1.3 billion (2014-15)</td>
<td>$1.2 billion (2016-17)</td>
<td></td>
</tr>
</tbody>
</table>

Table grapes were Australia’s highest value fruit export in 2015–16, followed by oranges, mandarins and cherries, and its export volume is continuously growing (Smith and Cameron, 2017, p. 75). As a leading export product in the broader horticulture sector, a table grapes value chain analysis is critical to address how the Australian horticulture industry can achieve further improvement of their value chain to expand their business.

**World Table Grapes Market**

Grapes are one of the oldest edible cultivated plants, with data suggesting consumption since around 5000 BC. Currently, grapes are produced worldwide with more than 8,000 varieties (Australian Table Grape Association Inc., 2017a). The United States Department of Agriculture (USDA) (2017a) reports that global consumption of fresh table grapes is increasing and has been over 20 million tonnes for five consecutive years from 2013-14. The largest consumer is China, which is expected to consume about 10 million tonnes in 2016-17, followed by India and the European Union (EU). The USDA also forecasts that the world’s table grape production in 2017-18 is projected to be nearly flat at 22.7 million tonnes after years of growth, as China and India increase their production but, on the other hand, there are offsetting weather-related losses in the EU and Turkey. It also predicts global trade in 2017-18 will rise because of higher export shipments by India, Peru, and Turkey along with an expansion in global demand. Although Australia is not among the world’s top ten producers, it is the tenth largest table grape exporter.

Since the Australian table grapes industry has less competitiveness than major table grapes-producing countries, it has to define its competitiveness on bases other than scale economies that may drive competitive price in the international market.
Australian Table Grapes Industry

Production

Grapes were first brought to Australia in 1788 by Captain Arthur Phillip, founder of the colony of New South Wales (Australian Table Grape Association Inc., 2017a). According to Horticulture Innovation Australia Limited (2017a, pp.5-7), in 2015-16, Australia was estimated to have produced a total of 178,000 tonnes of table grapes with a value of $541 million. The volume and value of production in 2015-16 was the best in 12 years. In addition, the industry continues to grow production and value levels because of significant expanding exports to high-value markets. There are approximately 1,000 growers around Australia, mostly in Victoria with 71 per cent, followed by New South Wales with 12 per cent. The majority of the producers are small- to-medium sized, family-owned enterprises. The broader Sunraysia region (Figure 1) is the largest table grape growing region in Australia, estimated to be growing 80 per cent of the total production. In addition, most of the major growers are in this region.

According to the State Government of Victoria (2015a), equipment such as a trellis, pergola, fence or wall is needed to grow table grapes. The lifetime of the vine is much longer than that of other fruit and often more than 100 years. While wine grapes and grapes for dried use can be commercially picked using machinery, table grapes are hand-picked to reduce the risk of fruit being damaged.

There are many table grape varieties harvested in Australia though production for the fresh market is dominated by three main varieties, Thompson, Crimson, and Menindee. Thompson and Menindee, both of which are the most common green varieties, accounted for 38 per cent of the fresh production for the year ending June 2016. The main red varieties, Crimson, Flame and Globe, accounted for 32 per cent of fresh production (Horticulture Innovation Australia Limited, 2017b, pp.208-209). Horticulture Innovation Australia Limited (2017a, p.8) also mentions production trends. In general, the Australian...
table grapes’ season is from October/November to May, as Table 2 shows. Export opportunities have influenced the producers to expand their crop varieties to include Crimson Seedless and also to expand their plantings with this variety. Crimson Seedless is regarded as a challenging variety to grow, but Australia is in a better position to supply Crimson Seedless with the best quality for export markets. However, to ensure the export market, Australia needs to improve this variety’s quality because it has colour issues which need to be solved.

Table 2. Major table grape varieties in Australia

<table>
<thead>
<tr>
<th>Export varieties</th>
<th>Seeds</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dawn Seedless (WA only)</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Menindee Seedless</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Thompson Seedless</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Crimson Seedless</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Flame Seedless</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Ralli Seedless</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Red Globe</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Autumn Royal</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Sugrathrian (MIDNIGHT BEAUTY brand)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: (Horticulture Innovation Australia Limited, 2017a, p.8)

Postharvest

Regarding postharvest activities, only limited information is available. One private company mentions that packing and processing are normally carried out in packing sheds or, more recently, in the field. Polystyrene boxes are mostly used to pack bulk fruit for distribution and sometimes to supply for supermarkets. While, in general, each grape grower carries out packaging themselves, smaller producers often contract larger grower/producers to package their fruit. Certain packing skills are required, and experienced pickers and packers are also needed to retain the product’s quality in each harvest season (SunAsia, 2017). The Australian Table Grape Association Inc. (n.d. p.16) states that, ideally, grapes are stored at cold storage facilities at 0-2°C and 85-95 per cent relative humidity to maintain their freshness. Poor storage practice causes loss of water in grapes and leads the fruit to have poor appearance and to lose weight.

Research and development and marketing activities

Horticulture Innovation, a grower-owned not-for-profit company, undertakes research and development (R&D) and marketing (Horticulture Innovation Australia Limited, 2017a). One cent per kilogram, consisting of 0.5 cents per kilogram for marketing and the rest for R&D (Department of Agriculture and Water Resources, 2017c), at the first point of sale, is paid as a levy from Australian table grape producers to the company. Representing the industry, the funds are collected by the Department of Agriculture, Fisheries and Forestry Levies Revenue Service (Australian Table Grape Association, 2017b). In 2015-16, the total table grape levy was approximately $1.78 million (Horticulture Innovation Australia Limited, 2017a). The major R&D and marketing activities conducted include export market
research, storage technique improvement, and both domestic and international marketing activities (Horticulture Innovation Australia Limited, 2016).

Domestic supply and consumption

Industry research shows that 62 per cent of Australian households purchased table grapes with an average of 806 g per shopping trip for the year ending June 2016. On the basis of the supplied volume, the annual consumption per capita was calculated to be 3.42 kg (Horticulture Innovation Australia Limited, 2017b, p.206). Until 2011-12, oversupply of table grapes to the domestic market caused a weakened market price, especially during the peak season, April to May. The domestic market is still the largest single market, though 62 per cent of production in 2015-16 was exported to 35 other markets (Horticulture Innovation Australia Limited, 2017a, p.10). Figure 2 shows the upward trend of total sales volume expansion and export.

Figure 2. Australian table grape export vs. domestic markets

Exports

Table grapes were the highest value export fruit in Australia in 2015–16, followed by oranges, mandarins and cherries. The exports grew steadily in the five years to 2015–16 (Figure 3). Vietnam was the second largest market in 2013-14, but during the 2015 season biosecurity restrictions were imposed by Vietnam and export was temporary prevented. While exports to Vietnam declined, table grapes exports to Japan and China have increased substantially because of the trade agreements and the agreed technical market access in 2014 for both markets (Smith and Cameron, 2017, p. 75).
Table grapes are packed and exported in 5 and 10kg cartons designed for maintaining freshness with long distance transportation (Tigifood Co. Australia, n.d). They can be transported by both air and by refrigerated containers on ships. While air freight transportation to Asia markets takes 48 to 60 hours after harvesting, ocean shipment takes 12 to 20 days from harvest to Asian markets or 4 weeks to Middle East markets (Taste Australia, 2017, p.14).

Figure 3. Australian table grape exports by destination, 2010-11 to 2015-16

In April 2016, the highest single volume of export for any month was achieved. Although, China is the leading export destination, the Japanese market experienced the strongest growth for the season of 2015-16. The Japanese market expansion for Australian table grapes was 406 per cent growth compared with the previous season and the volume was nearly 10,000 tonnes.

Figure 4. 2015/16 fresh table grape exports by country

Source: (Smith and Cameron, 2017, p.75)
Source: (Horticulture Innovation Australia Limited, 2017b, p.210)
The Japanese market became the fourth largest export destination for Australian table grapes after opening their market in 2014. It is predicted Japan could become the second largest market after China for table grapes (Australian Table Grape Association Inc., 2016). For the year ending 2016, 27 per cent of exported fresh table grapes were sent to China, followed by Indonesia with 16 per cent, Hong Kong with 12 per cent, and Japan with 9 per cent as Figure 4 shows (Horticulture Innovation Australia Limited, 2017b, p.210).

Regarding export procedures, every year table grape growers, packing houses and treatment facilities that wish to export to China, Japan, Korea, or Thailand have to register with the Department of Agriculture and Water Resources before commencing the season. This is a specific requirement with these markets. The applicants for export approval will be audited by the Department to ensure compliance regarding the export market, according to the criteria shown in Figure 5 (Department of Agriculture and Water Resources, 2017d).

![Figure 5. Audit criteria for export approval to the certain markets](source)

Although actual data of firm size of table grape exporters is not available, the proportion of small- and medium-size exporters in ‘Agriculture, forestry and fishing’ industry accounted for 89 per cent, with small accounting for 55 per cent and medium 34 per cent, in 2015-16 (Australian Bureau of Statistics, 2017). Based on these data, most fresh table grapes exporters are regarded as small-to-medium size enterprises. There are only a few growers who export directly (Horticulture Innovation Australia Limited, 2016).

**Japanese Market Analysis for Australia Table Grapes**

**Japanese market overview**

Japan is one of the world’s top five importers of agricultural products (United States Department of Agriculture, 2018), and is the second largest export destination for Australian food and fibre in terms of value from FY (fiscal year) 2006 to FY2014 (Australian Trade and Investment Commission, 2017a, p.8). In terms of fruit consumption, despite annual average household consumption and expenditure on fruit in Japan declining from 97 kg to 78 kg during 2003 to 2015, average household consumption of grapes is growing. Expenditure and consumption of grapes per household in 2015 was the highest in 14 years. This upward trend was only seen for table grapes and kiwifruit in the Japanese market (Ester, 2016).
Domestic grown and imported table grapes

In terms of fresh table grapes, Japan was the world’s 15th largest producer with 56,760 tonnes, following Australia and Russia, which are 13th and 14th respectively in 2016-17 (United States Department of Agriculture, 2017b). Among Japanese fruits, table grapes have the third largest production value, with domestic product available from June to October (Ministry of Agriculture, Forestry and Fisheries, Japan, 2017a, pp.2, 18).

Fresh table grapes’ import volume in 2016 was about 33,671 tonnes which was 54 per cent higher than 2015 and the value also increased by 54 per cent (Ministry of Agriculture, Forestry and Fisheries, Japan, 2017b). Main supply countries are Chile, the United States, Australia, Mexico, New Zealand and Taiwan (Japan Customs, 2016, p.2).

To prevent insect pests such as flies, table grapes’ imports from many regions in the world have been prohibited (Japan Customs, 2016, p.2) and Australian table grapes were also banned entry to the Japanese market until 2014 (Australian Trade and Investment Commission, 2014). After opening the market for Australia, three varieties of Australian fresh grapes, Crimson Seedless, Thompson Seedless and Red Globe, were permitted to be imported under certain conditions. Australian table grapes are required to meet the criteria about phytosanitary procedures set by the Japanese government, which includes the registration of the farm lands and other facilities (Ministry of Agriculture, Forestry and Fisheries, Japan, 2013).

Chile is the primary competitor among imported table grapes in Japan as their export season and volume are similar to Australia’s, as Figure 6 indicates. The United States, Mexico and New Zealand sometimes hit the same sales period, though it is not regarded as an issue. Australian Table Grapes Association (2016) argued that product differentiation is the key for Australian table grapes growers because major competitors in the international market, such as Chile, South Africa and Peru, have production advantages driven by cheap labour cost and lower other input costs, which cannot be matched by the average Australian producers.

Importers, and retailers, food service sectors, food manufacturers

Tokyo and Yokohama ports each contribute over 35 per cent, followed by Sakai port in Osaka with 17 per cent, of the total Australian table grapes import volume in 2015 (Japan Customs, 2016). As there is no regular direct shipping from Australia to Tokyo port (Tokyo Port Terminal Corporation, 2017), the products coming to Tokyo port are assumed to be transferred from other ports. On the other hand, Yokohama port has direct shipping from several ports in Australia (Port of Yokohama, 2017).

Generally, imported fruit goes from the importer to retailers, food service sectors or food manufacturer via wholesale markets and wholesalers. Sometimes, importers directly sell to retailers or others without going through the markets (Ministry of Agriculture, Forestry and Fisheries, Japan, n.d). It is uncertain what kind of retailers, food industry sector and food manufacturers purchase Australian table grapes in Japan. As well, the information of the characteristics about the importers such as business size or product range is unavailable.

However, a State Government of Victoria media release (2015b) reported that the Victorian Minister for Agriculture visited Aeon, Japan’s largest supermarket chain with operations in 13 countries across South
East Asia, in September 2015 to celebrate the success of Victorian table grapes exports to this supermarket. In March 2017, it was reported that the Australian Consul to Japan visited MaxValu supermarket, which is a part of Aeon group, to promote a tasting sale of Australian table grapes for consumers (MaxValu Chubu Co. Ltd., 2017). These media releases imply that the products are sold in the large supermarket chain stores in Japan, so it can be assumed that Australian table grapes are imported by the importers and are mainly sold to the larger retail chains.

![Figure 6. Table grapes' monthly import volume in Japanese market by countries](image_url)

*Source: (Ministry of Agriculture, Forestry and Fisheries, Japan 2017c)*

**Mapping the Table Grapes Value Chain from Australia to Japan**

The value chain mapping sections of this analysis are based mainly on the ValueLinks Manual, which is the methodology of value chain promotion (Springer-Heinze et al., 2008). This map is highly focused on the value chain of Australian table grapes’ export to Japan. Therefore, some Australian domestic chains and other international markets’ components are omitted. The overall value chain described above is summarized in Figure 7.

**Assessment of the Performance of the Value Chain Strategy**

According to Chopra and Meindl (2013, p.43), “the goal of supply chain strategy is to strike a balance between responsiveness and efficiency” and taking this balance as a value chain’s strategy is named as the strategic fit.

Responsive value chains provide highly responsive services to consumers based on their demands with short lead times and with a variety of innovative products with mass quantity, efficient value chains.
Figure 7. Value chain map – Australian table grapes export to Japan

- **Specific Inputs**
  - Input Suppliers
    - Vine cuttings
    - Land
    - Irrigation
    - Equipment (trellis, fence, wall)
  - Medium to Small Growers / Large Growers
    - 178,000 tonnes
    - $541 million
    - 2015-16
    - approx. 1,000 growers

- **Growing**
  - Packing Shed / Field Packing

- **Harvesting, Packing, & Processing**
  - Cold Storage (own/lease)

- **Wholesale**
  - Agent

- **Retail**
  - Food Service
  - Food Manufacture

- **Consumption**
  - Local market
  - Consumer

- **Support Function**
  - R&D, Marketing Activities

- **Inputs**
  - Fertilizer / Chemicals
  - Produce equipment / Water / Production guidelines
  - Seasonal workforce / Packaging materials / Outsource service / Export registration
  - Transportation / Customs clearance / Sales point / Export registration
  - Logistics / Transportation / Storage / Sales point / Branding

Note:
- Product Flow
- Information Flow
- Financial Flow

Industry representatives
- Australian Table Grape Association
- Horticulture Innovation
- Australian Horticultural Exports’ Association etc.

Government
- States government

At first point of sales $1/kilogram as levy collected by government

Share of total export in 2015-16
- China: 27%
- Indonesia: 16%
- Hong Kong: 12%

Export market
- Japan: 9%
- Local market: 62%
produce and supply a smaller range of products at the lowest possible cost. Thus, responsiveness in a value chain focuses on defining and fulfilling customers’ demands as much as possible, while on the other hand, efficiency value chains aim to achieve logistical efficiency.

It is difficult for the table grapes value chain to respond to consumer demands or preferences immediately. It is because vines will generally take four to five years to reach full production (State Government of Victoria, Australia, 2002) and as a permanent crop they produce fruit once a year. These features lead to a longer lead time between producing and consuming than, say, the apparel industry, which is regarded as a highly responsive value chain (Chopra and Meindl, 2013). In addition, there are other factors that make responsiveness more difficult. For example, in the Japanese market, only three varieties are permitted access to the market from Australia (Japan Customs, 2016, p.2) which means responding to consumer demands or preferences other than those related to the three varieties is impossible. All of the Australian table grapes are imported into Japan by sea transportation because of required specific treatments for quarantine. If shipped by air freight, the same treatment would be required at warehouses in Japan (Japan Customs, 2016, p.5). Overall, these factors jointly suggest that the value chain of Australian table grapes export to Japan has to focus on efficiency.

The Value Chain Drivers

Facilities

There are two main sets of facilities utilized along with the table grapes value chain: chilling and packing facilities, which are used by growers or an outsourcing agency; and cold storages which are operated by the wholesale market, wholesalers, exporters, importers, or retailers. Horticulture Innovation Australia Limited (2017a, p.10) points out that insufficient chilling or packing facilities in Australia, along with production expansion, would provide problems for the industry in future. As production and export are forecast to increase, the proper expansion of facilities to meet the industry’s enlargement is critical.

Inventory

In terms of inventory of such things as raw materials, workforces, and final products, there is little information available, which is assumed to occur because of the fragmented nature of the value chain. Lack of labour, in terms of quality and quantity, is regarded as a major industry concern in the table grape industry. This concern also exists in various other horticulture industries (Horticulture Innovation Australia Limited, 2017a, p.10).

Transportation

As with facilities, Horticulture Innovation Australia Limited (2017a, p.10) also mentions domestic transportation and shipping containers and routes as potential issues if they cannot meet increasing production and export. Sometimes, events completely outside the industry’s control cause concern. For example, in May 2017, a freight company, which carries table grapes from the Sunraysia region to domestic and international markets, had to arrange an additional 634 truck trips and had to pay extra storage cost due to a rail strike (ABC News, 2017).

In terms of international transportation, all Australian table grapes currently are carried by sea freight since they are required to conduct low-temperature treatment (under 1.0 Celsius for 16 days) for the
fruit during the shipment or at the cold storage in Australia in order to meet phytosanitary criteria (Japan Customs, 2016). So, even export using air freight cannot be used to achieve a high degree of responsiveness. Therefore, arranging shipping services based on accurate demand prediction is very important for this value chain.

Regarding domestic transportation within Japan, recently there have been issues about driver shortages in the trucking industry, so importers or retailers have to carefully consider logistics efficiency. The truck industry handles around 45 per cent of the domestic transportation volume, and so the Japanese government is now trying to find a solution for the issue (Ministry of Land, Infrastructure, Transport and Tourism, Japan, 2015).

Information

Horticulture Innovation Australia Limited (2017a, p.16) suggests that “Lack of industry cohesion: fragmented industry; no sharing of information among growers; lack of industry data restricts market development” and “Lack of data intelligence on production, capability, markets” are the weaknesses in the Australian table grape industry. However, it values as a strength the collaboration between the industry body and researchers, and between public (federal and state) agencies and private organizations. In addition, the range of grower information activities and the marketing campaign in the export market are also recognized as a strength. In terms of information along the value chain, it appears that the issue is the less integrated information availability from the producer side to the other actors.

As a new co-investment initiative, in February 2017, the Queensland Department of Agriculture and Fisheries (QLD DAF) and Horticulture Innovation Australia announced a four-year project about the intensification of export operations along all stages in the value chain. In this initiative, the Victorian government will work together as a project partner for temperate fruit export chains including table grapes (Horticulture Innovation Australia Limited, 2017c). It appears that the industry is trying to improve the information sharing in the chain and to clarify the critical issues for the export chain such as the packing and storage processes and lead time control.

Pricing

The pricing strategy of Australian table grapes in Japan has been analysed by adopting the Australian Trade and Investment Commission’s (2017b) export guide. In the Japanese market, as Figure 8 shows, Australian table grapes’ CIF price is higher than the major competitor, Chile. One of the reasons for this is that Australian table grapes growers’ costs around production and exports are higher. It is because Australian table grapes growers are mostly small-to-medium sized family owned businesses (Horticulture Innovation Australia Limited, 2017a, p.7) and thus they cannot compete with Chile which has significant production advantages with lower labour and other input costs (Australian Table Grapes Association Inc., 2016). They cannot adopt a competitive pricing strategy. However, their products are sold in the largest supermarket chains, which implies they have not fully taken on a premium pricing strategy (Australian Table Grapes Association, 2016). Therefore, the pricing strategy can be said to be between cost-plus pricing and premium pricing which matches the industry’s vision.
Major Constraints to Better Performance in the Chain

Although there is some information lacking for some of the drivers, it appears that the key things required to achieve the value chain’s efficiency are how facilities and transportation are utilized effectively. To achieve effective utilization of the facilities and transportation, sharing the information among the value chain’s actors is the most critical constraint.

Figure 8. Comparison of table grapes’ cif (cost-insurance and freight) price per kg in Japan, Australian table grapes season in 2015-2017

The effectiveness of allocating, sharing or arranging the facilities and transportation is potentially driven by how well information sharing works. Therefore, in the table grapes value chain, the major obstacles that constrain performance in the value chain of Australian table grapes’ export to Japan are determined as follows:

- Fragmented facilities and information sharing system among the growers;
- Several particular concerns about transportation: uncertainty, long lead time, and shortage; and
- Lack of information accessibility among the whole value chain, especially from wholesalers, exporters, and importers.

Need to Establish Information Sharing Network Infrastructure

As the actors in the value chain are fragmented and many are relatively small, it is difficult for them to communicate with each other and information sharing is only partially achieved. This makes the value chain less transparent and hard to draw the industry’s future with supporting data. This has been already recognized as a challenge for the industry by the Horticulture Innovation Australia Limited (2017a, p.15). As they suggest, some other Australian horticulture industries like almond, citrus and...
macadamia, which have comprehensive industry data on both production side and others, may be good models for table grapes. Further analysis of how table grapes can adopt these potential models to establish an information sharing system will be required. Establishing an information sharing network infrastructure will provide benefits to all of the actors. This network might cover information such as production, the facilities usage situation, pricing at wholesale markets, transportations’ condition, R&D, marketing, and other things related to the value chain. This system could be online-based and shared instantly around the world. The existing table grapes industry body already has the connection with growers, exporters and other actors. The basic network could be funded from the levies, and other actors such as the wholesalers, traders, transportation operators, or input suppliers could also contribute for specific services.

Producers can gain production information from other producers or R&D providers in order to utilize it for their grapes’ production. Wholesale markets, wholesalers, importers and exporters, so-called middle people, can define accurate sales season, volume and product quality trends that will be sold in the market. In addition, by utilizing the information, sales planning to the next stage actors such as retailers will become easier and less time expensive and, furthermore, arranging shipments to overseas will be more effective. From the view of government, local governments or industry representatives, their data collecting and further research could be better conducted with the information, and they could efficiently provide important notification for the other actors. In terms of external service providers like production input, facility and transportation providers, allocating their assets’ usage would be easier and more effective. As there are many value chain actors and they are relatively poorly integrated at present, the key option for achieving a more efficient value chain is definitely to enhance the information infrastructure.

Conclusion

Australian table grapes have gradually become dependent on the export trade along with world demand expansion. As a result of the table grapes industry’s characteristics, the value chain is highly focused on efficiency for strategic fit. Further analysis with more information is required to clarify the value chain’s performance. However, as an initial analysis of the export chain from Australia to Japan, as one of the export destinations, the fragmented information-sharing scheme obviously appears as a major constraint in this value chain.

As a useful intervention in this value chain, enhancing the information sharing system should be targeted, and the intervention will be useful for other export destinations of table grapes as well. Although this activity requires a lead institution and financial resources, utilizing existing industrial organization and levies can be one possible option to achieve improvement of the constraint. The further in-depth analysis would enable specification of other useful targeted intervention activities. Meantime, this overview advocates the targeting of the significant improvement of the information sharing network.

References


