

Malaysia & United Arab Emirates Market Analysis and Strategy: Carrots and Sweet Corn

Michael Clarke
AgEconPlus Pty Ltd

Project Number: VG13047

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Final Report Stage 2 (Milestone 190)

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Abbreviations / Glossary

ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
AED	Emirati Dirham (approximately 3 to the \$A)
ASEAN	Association of South East Asian Nations
ABL	Australian Business Limited
AHEA	Australian Horticultural Exporters Association
ASEAN	Association of South East Asian Nations
BMP	Best Management Practices
BOM	Bureau of Meteorology
c&f	Cost and Freight
DA	Dairy Australia
DC	Distribution Centre
DFAT	(Australian Government) Department of Foreign Affairs and Trade
DPI	Department of Primary Industries
ERS	USDA Economic Research Service
FTA	Free Trade Agreement
GAP	Good Agricultural Practice
GCC	Gulf Cooperation Council (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE)
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GVP	Gross Value of Production
HAL	Horticulture Australia Limited
HS	Harmonised Standard Code
IPM	Integrated Pest Management
KL	Kuala Lumpur
LLC	Limited Liability Company
MRL	Maximum Residue Limit
NESOI	Not Elsewhere Specified or Included
NZHEA	New Zealand Horticulture Export Authority
OHMA	Office of Horticultural Market Access
PRC	Peoples Republic of China
QDAFF	Queensland Department of Agriculture, Fisheries and Forestry
QSR	Quick Service Restaurant
ROI	Return on Investment
RMB	Chinese currency
SIP	Strategic Investment Plan
SPS	Sanitary, Phytosanitary
SPS	South Pacific Seeds
UAE	United Arab Emirates
USDA	United States Department of Agriculture
WOP	World of Perishables (trade exhibition Dubai, November 2013)
WTO	World Trade Organisation

DISCLAIMER

All description, figures, analyses, forecasts and other details have been prepared in good faith from information furnished to Mike Titley, John Baker and Michael Clarke by other parties. These data are believed to be correct at the date of preparation of this report.

However, it should be noted that predictions, forecasts and calculations are subject to assumptions which may or may not turn out to be correct and AgEconPlus Pty Ltd, Produce Marketing Australia and MHT Consulting expressly disclaim all and any liability to any persons in reliance, in whole or in part, on the report in total or any part of its contents.

Michael Clarke
AgEconPlus Pty Ltd

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- Jim Trandos, Trandos Farms, Neerabup, Vegetable Industry Grower Partner (sweet corn)
- Peter Wauchope, Center West Exports, Woodridge, Vegetable Industry Grower Partner (carrots)
- Peter Ivankovich, Ivankovich Farms, Myalup, Vegetable Industry Grower Partner (carrots)
- Joe Castro, Castro Farms, Myalup, Vegetable Industry Grower Partner (carrots)
- Gavin Foord, Export Development Manager, Horticulture WA
- Maureen Dobra, President, Vegetables WA

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Executive Summary

The objective of this study was to complete an analysis of the fresh carrot and sweet corn markets in the United Arab Emirates (UAE) and Malaysia; identify and profile relevant supply chain participants that would assist growers to develop export trade networks; and prepare an R&D investment plan.

Carrots dominate leviable vegetable exports, contributing 75% (\$52.4million) of the total export value (2012). Previous studies have indicated that sweet corn exports could have additional potential.

The study has been completed with the strongest possible grower focus – seventeen significant carrot grower / packer / exporters and nine sweet corn grower / packers were contacted prior to project commencement, their views on study parameters sought and a representative sample selected and funded to participate in ‘in-country’ market research. This approach yielded the best possible results – growers were able to converse directly with supply chain partners and provide an initial ‘on-the-spot’ assessment of whether there was commercial opportunity.

Encouragingly opportunity to grow the export market for carrots and sweet corn was identified in the UAE and additional commercial opportunity was also identified for carrots in Malaysia. The Three Year Market Development Investment Plan for Carrots UAE and Malaysia was developed after desk based analysis, field investigations, long listing of investment options and return on investment (ROI) analysis. The Carrot Plan includes thirteen strategies spread across three plan objectives plus project management – Table E1.

Table E1 Carrot Plan UAE and Malaysia – R&D Investment and ROI Results

Objective / Strategy	R&D Investment			Return on Investment (Benefit Cost Ratio) [#]
	Year 1	Year 2	Year 3	
1. Increase the supply of carrots for export				
1.1 Address the sustainability of production	\$300,000	\$600,000	\$600,000	7.8
1.2 Investigate the potential of new production areas	\$120,000			5.7
1.3 Audit production practices and varieties	\$100,000	\$150,000		4.7
1.4 Training in growing carrots for export markets		\$50,000	\$125,000	4.2
2. Product enhancement and provision of services				
2.1 ‘Sweeter carrots’: brix testing to differentiate Australian carrots	\$10,000	\$20,000		9.5
2.2 Identify dual purpose fresh/processing carrot types		\$30,000	\$70,000	4.1
2.3 a. Juice supply chain; composite carrots and bulk containers b. Bulk packaging for in-country prepacking (Malaysia)		\$40,000	\$60,000	3.4
2.4 Technologies to extend juice shelf life	\$50,000	\$100,000		3.7
2.5 Crop reports and forecasts	\$90,000	\$90,000	\$90,000	3.2
3. Develop the market in the UAE and Malaysia				
3.1 Retail and food service training	\$140,000	\$80,000	\$80,000	3.3
3.2 Handbook of Australian vegetables	\$20,000	\$20,000	\$20,000	3.1
3.3 Trade communications	\$20,000	\$20,000	\$20,000	6.2
3.4 Address the loss of cold chain integrity in the UAE	\$60,000			8.8
4. Project management and review				
4.1 Prepare briefs, review proposals, review progress, etc.	\$89,000	\$124,000	\$104,500	
Total	\$999,000	\$1,324,000	\$1,169,500	5.4

Additional decision criteria are reported in the body of the report

The carrot plan is a worthwhile investment requiring a total of \$3.5 million over three years. For every dollar spent in developing the UAE and Malaysian carrot markets a forecast \$5.40 is returned to growers. In addition to this quantified benefit there are ‘spillover’ benefits for other carrot export markets, the domestic carrot market and the broader vegetable industry. ‘Spillover’ benefits are detailed in Chapter 6.

Market analysis revealed that Australian investment in the Malaysian sweet corn market was not warranted – Malaysia is virtually self-sufficient in sweet corn. The sweet corn investment plan for the UAE includes four strategies spread across three plan objectives plus project management – Table E2.

Table E2 Sweet Corn Plan UAE – R&D Investment and ROI Results

Objective / Strategy	R&D Investment			Return on Investment (Benefit Cost Ratio) [#]
	Year 1	Year 2	Year 3	
1. Increase the supply of sweet corn for export				
1.1 Training in growing carrots for export markets	\$20,000	\$30,000	\$30,000	4.6
2. Product enhancement and provision of services				
2.1 Product presentation research	\$20,000	\$30,000		5.1
2.2 Atmosphere packaging research		\$50,000	\$50,000	5.7
2.3 Trial shipments to UAE	\$40,000			
3. Project management and review				
3.1 Prepare briefs, review proposals, review progress, etc.	\$8,000	\$11,000	\$8,000	5.0
Total	\$88,000	\$121,000	\$88,000	4.7

Additional decision criteria are reported in the body of the report

Investment of \$297,000 in the UAE sweet corn market over three years is worthwhile with a forecast grower return of \$4.70 for every dollar invested with ‘spillover’ benefits for other sweet corn export markets, the domestic sweet corn market and the broader vegetable industry. These broader benefits are shown in Chapter 6.

The project should now proceed to Stage 3 – investment plan implementation – following appropriate internal review processes.

1 Introduction

1.1 Study Purpose and Objectives

This document is a final report. It includes an analysis of the carrot and sweet corn markets in Malaysia and the United Arab Emirates (UAE), identification of investment options, return on investment analysis and a three year investment plan.

The project has its origins in recommendations made in HAL Project VG12042 'Vegetable Industry: Domestic and Export Market Access and Trade Viability Issues – A Strategy to Address' which identified a suite of export development opportunities. Recent HAL investments in vegetable export development have included:

- Malaysia and the UAE market analysis and strategy – baby leaf and beans
- Market analysis and strategy – broccoli to Japan
- Identification of market opportunities for Australian vegetables in China
- Asia Logistica participation by the Australian vegetable industry
- Reverse trade mission for potential importers of Australian vegetables

The objectives of this project were to:

1. Complete market research and return on investment analysis of potential opportunities and threats associated with exporting carrots and sweet corn to Malaysia and the UAE.
2. Identify and profile relevant supply chain participants that would benefit/assist growers to develop export trade networks to and within Malaysia and the UAE.
3. Develop a market development investment plan (subject to a positive outcome from Objective 1) that provides industry with a working document on the future strategy for Australian carrot and sweet corn exports to Malaysia and the UAE.

The market development investment plan was to include research and development (R&D) investments required for implementing the plan, industry positioning, product positioning, targeted strategies for different sectors within each market and projected timelines.

Investment strategies will align with the Market and Value Chain Development Objective of the Vegetable Industry Strategic Plan 2012-2017 (HAL 2011). The project was to focus on fresh, rather than frozen, Australian carrots and sweet corn.

1.2 Project Approach and Industry Engagement

The project is to have a four year total duration. Stage 1 (Market Research) and Stage 2 (Investment Plan Development) will be completed by April and September 2014 respectively. Stage 3 (Investment Plan Implementation) will be delivered over three years and is the subject of a separate HAL contract. Stage 1 and 2 project tasks included:

Stage 1 Market Research

1. Desk based analysis and identification of grower partners
2. In country market research and market analysis
3. Identification and preliminary ranking of investment options
4. Interim report preparation.

Stage 2 Investment Plan Development

1. Return on investment analysis
2. Three Year Market Development Investment Plan preparation
3. Extension and communication of the plan
4. Symposia collaboration.

Identification of grower partners who would ensure the investment plan was commercially sound and who might be interested in its implementation was a critical component of the project. HAL Project VG12042 concluded that

success in both the UAE and Malaysian markets required a focus on value added products direct to the supermarket / hypermarket sector. With this in mind the following criteria were applied to the selection of grower partners:

- Capacity to export suitable varieties and product volumes
- An interest in value adding – as it is broadly defined and including both product and service features
- Export experience
- Financial stability
- Relevant supply windows
- Linkages or integration with packer marketers
- Domestic category management expertise
- A willingness to make time, and potentially, financial contributions to the project
- Were consistent with recommendations made by grower groups such as AUSVEG and Vegetables WA.

Grower partners were selected through consultation with relevant industry organisations, and after personalised emails were sent to all known carrot and sweet corn growers in January and February 2014. Grower and industry partners were:

Table 1.1 UAE Grower and Industry Partners:

Name	Company	Product
Peter Ivankovich	Ivankovich Farms	Carrots
Fabian Carniel	Mulgowie Farming Company	Sweet corn
Jim Trandos	Trandos Farms	Sweet Corn

Table 1.2 Malaysia Grower and Industry Partners:

Name	Company	Product/Position
Joe Castro	Castro Farms	Carrots
Tally Matthews	Ace Ohlsson	Carrot agronomist
Gavin Foord	Horticulture WA	Export Development Manager

Growers contacted are listed in Tables 1.3 and 1.4.

Table 1.3 Carrot Growers and Others Contacted and Expressing Interest in Project Outcomes

Name and Contact	Location	Project Interest	Profile
Center West Exports– Peter Wauchope	Western Australia	√	Contract grower, packer, marketer, exporter
Patane Produce – Michael and Pennie Patane	Western Australia	√	Grower, packer and exporter
Sumich – Nick Tana, Vincent Tana and Barry Buss	Western Australia	√	Grower, contract grower, packer, marketer and exporter
Ivankovich Farms – Peter and Anthony Ivankovich	Western Australia	√	Grower, packer and exporter
Castro Farms - Joe and Sonia Castro	Western Australia	√	Grower, packer and exporter
Larry Maiolo	Western Australia		Grower and packer
Anthony Marinovich	Western Australia		Grower and packer
Maureen Dobra, Vegetables WA	Western Australia	√	Grower and assisted with project contacts
Sarah Houston, Vegetables WA	Western Australia		Assisted with project contacts
John Shannon, Vegetables WA	Western Australia		Assisted with review of WA industry
Gavin Foord, Horticulture WA	Western	√	Export development and assisted with

	Australia		project contacts
Rohan Prince, DAFWA	Western Australia		Assisted with grower agronomy and sustainability questions
Harvest Moon – Simon Drum and Kevin Clayton-Greene	Tasmania	√	Grower, contract grower, packer and marketer
Ace Ohlsson - Tally Matthews	NSW	√	Agronomist, Agricultural and Horticultural Merchandise Suppliers
Rocky Lamattina & Sons	Victoria		Grower, packer and marketer
Covino P/L - Peter Covino	Victoria		Grower and packer
Bonaccord – Ross Ingram	Victoria		Grower and packer
Kalfresh – Robert Hinrichsen	Queensland		Grower, contract grower, packer and marketer
Moffatt Fresh Produce – Scott Moffatt	Queensland		Grower and packer
Mulgowie Farms – Fabian Carniel	Queensland	√	Grower, packer and marketer of Dutch bunching carrot
Nicol Carrots – Doug Nicol	South Australia		Grower and packer
Parilla Produce – Mark Pye	South Australia		Grower and packer
SPS Seeds – Matthew Sheedy and Darren McPhan	National		Carrot seed distributor and comprehensive grower knowledge. Represent Vilmorin Seeds
Nunhems Seeds-Jason Cooper	National		Carrot seed supply and comprehensive grower knowledge
Lefroy Valley Seeds-Nick Laminski	National		Carrot seed distributor and comprehensive grower knowledge Represent Sakata Seeds

Table 1.4 Sweet Corn Growers and Others Contacted and Expressing Interest in Project Outcomes

Name and Contact	Location	Project Interest	Profile
Trandos Farms – Jim Trandos	Western Australia	√	Grower, packer, marketer and value adding
James Stewart	NSW	√	Grower
Dominic Pace	NSW		Grower
Jeff McSpedden	NSW		Grower
Cox Farms – Nelson Cox	Victoria		Grower and packer
Bonaccord – Ross Ingram	Victoria		Grower and packer
Mulgowie Farms – Fabian Carniel	Queensland	√	Grower, contract grower, packer, value adding, marketer and exporter
Rugby Farms – Matthew Hood and Amir Shoshani	Queensland	√	Grower, packer, value adding, marketer, exporter
Kalfresh – Robert Hinrichsen	Queensland		Grower, contract grower, packer and marketer
Lefroy Seeds – Warren Ford	National		Sweet corn seed -distributor and comprehensive grower knowledge. Represent Snowy River Seeds.

Field investigations were also important to the success of the project. To this end the team completed desk based analysis and preliminary ‘scouting’ missions in both markets in November and December 2013 before returning with grower partners in February and March 2014 to complete more commercial investigations. Field work included:

- Eurofruit Congress Middle East, Dubai UAE – November 2013
- World of Perishables Exhibition, Dubai – November 2013 <http://www.me-congress.com/home>
- UAE retailer and wholesale market visits November 2013
- Austrade Dubai meeting November 2013 and subsequent commissioning of program of trade meetings for field work with grower partners
- Austrade seminar – Gulf Cooperative Council (GCC) Outlook to 2020, Sydney December 2013
- Scoping visit to Malaysia, December 2013
- Commissioning Total Market Solutions to profile the Malaysian market, undertake trade interviews and arrange a of program of trade meetings for field work with grower partners
- Detailed field work with grower partners Dubai, February 2014
- Attendance at Gulfoods Trade Show with grower partners, February 2014
- Detailed and commercially oriented field work, with grower partners, Kuala Lumpur Malaysia, March 2014
- Investigation of Vietnamese carrot production at Hai Duong on the Red River Delta near Hanoi.

Supply chain and other participants who contributed to the study who have the potential to assist growers with the development of export trade networks are listed in Tables 1.5 and 1.6.

Table 1.5 UAE Supply Chain and Other Participants Contacted

Company	Contact(s)	Profile in the Vegetable Supply Chain
Abuseedo	Hadi Abuseedo (airfreight) Sahadi Abusnineh (seafreight)	Import and distribution
All Fresh Co	Ozkan Arabaci	Import and distribution
Barakat Vegetables and Fruit Company	Sivaram C KM Shanavas	Import, Distribute and manufacturer vegetable products
Barakat Quality Plus	Michael Wunsch	Import, Distribute and manufacturer vegetable and other products
Cost Cutter	Ansar Butt Hari Menon	Import and distribution
Del Monte	Rola Hadad (Dubai) Mohammed Abbas (Saudi Arabia)	Import, Distribute and manufacturer vegetable products
Farzana	Ayoub Al Sharif	Import and distribution
International Foodstuffs Co (IFFCO)	Irfan Aziz Faiz Irshad Kazi	Import and distribution
KAF	Bashar Khalid Foudeh Mike Haj-Eid (key contact)	Import and distribution
Kibsons International	Daniel Cabral, Moinuddin Falke	Import and distribution
Marhaba	Hamid Safari, Ali Arjomandi	Import and distribution
Unifruitti	Allessandro Cecchinato	Import and distribution
Al Waha Fruit and Vegetable	Ahmad El Cheikh	Wholesale
LuLu / EMKE Group	Zulfiker K Santhosh Matthew	Retail
Choithram & Sons	Pravesh Sawlani Manoj Kumar	Retail
Spinneys / JHF Australia	Michael McGrath	Retail

Exports	Bob Cooper	
Abu Dhabi Coop Society	Bassam Omar	Retail
Sharjah Coop Society	Hassan Ali	Retail
Emirates Sky Cargo	Mark Kari	Airfreight
AMFI	Bassam Bousaleh	Food service, market analyst UAE
McDonalds Restaurants	Zoran Rancic	Food service supply chain development in UAE
The Market	David O'Brian	Supply chain consultant based in Dubai
Austrade, UAE	Jane Shanthi Mascarenhas	Business Development Manager UAE
Austrade, Saudi Arabia	Mark Morley	Senior Trade Commissioner
Australian Embassy, UAE	Pablo King	Ambassador
Meat & Livestock Australia	Lachlan Bowtell Robert Parker	UAE fresh meat marketing experience and expertise
AMFI, UAE	Bassam Bousaleh	US commodity board representative

Table 1.6 Malaysia Supply Chain and Other Participants Contacted

Company	Contact(s)	Profile in the Vegetable Supply Chain
Euro-Atlantic	Su'Aidah Ahmad Jasmine Lee	Import and distribution
Khaisen Trading	Jeffrey Tan Edmanda Chang Tracy Lee	Import and distribution
Chop Tong Guan	Debbie Koay	Import and distribution
Techno Fresh Agro Produce	LK Tee	Import and distribution
LLS Fresh Fruit Marketing	Choong Poh Poo	Import and distribution
Nature First Harvest	Robin Lau Chong Chee Keong Ai Ling Florence Simendinger (Sing.)	Import and distribution
Mac Foods (Golden Arches Restaurants Sdn Bhd)	Penny Lim – Supply Chain Manager	Food Service
Marini's 57	Federico Micheletto	Food service – upscale restaurant
Village Grocer Supermarket	Ong Chee Chong	Retail
Jaya Grocer Supermarket	Daniel Teng	Retail
AEON Supermarket	Store visit only	Retail
Eonsave Supermarket	Store visit only	Retail
GCH retail (Malaysia)	Neil Christie Junie Chung Wee Lin Halimah Bakar Richard Elvin	Retail parent company – 149 Giant stores plus Cold Storage, Mercato and Jasons.
Tesco Hypermarket	Store visit only	Retail
Total Market Solutions	Eddie Saw Kent Low	International produce commodity board representatives and research, based in Kuala Lumpur (KL)
All About Fresh Produce	Retna Malar	Supply chain consultant based in KL
Rijk Zwaan	Juan Doldersum	Sweet corn seeds
Austrade, Malaysia	Patricia Lee	Senior Business Development Manager Malaysia
Austrade, Malaysia	Renee Lee	Business Development Manager Malaysia

Additional project contacts made to ensure the integrity of the report are summarised in Table 1.7.

Table 1.7 General Project Contacts

Company	Contact(s)	Relevance
Euromonitor	Graham Gilbert Ben Dunsheath	Completion of the 'sister project' on beans and baby leaf vegetables UAE and Malaysia

Stage 2 final report is the output of these investigations.

2 Review of Existing Carrot Production, Products and Export Data

2.1 Carrot Production Profile

Carrots are grown in all Australian states. However, Western Australia with its relative proximity to Malaysia and the UAE, dominates total production and exports – Table 2.1.

Table 2.1 Australian Carrot Production 2011-12

State	Tas	Qld	NSW	Vic	SA	WA	Total
Area (ha)	760	955	160	1,077	706	1,869	5,527
No of businesses	74	65	29	40	19	27	254
Production (tonnes)	50,078	34,356	6,114	62,266	54,234	112,137	319,185
T/ha	65.9	36.0	38.2	57.8	76.8	60.0	55.8
Export (tonnes)*	1,960	1,314	46	657	243	65,360	69,580
Export share of total	3%	2%	<1%	<1%	<1%	94%	100%

Source: ABS 71210DO002_201112 Agricultural Commodities, Australia, 2011-12 (released May 2013)

* HAL Australian Horticulture Statistics Handbook 2012 – data is for 2010-11

The Western Australian carrot industry is export oriented supplying most of the carrots sea freighted to Malaysia and the UAE. Western Australia is able to supply year round from an industry supported by suitable soil, a favourable climate, mechanical harvesting and world class pack houses. All the major Western Australian grower-packers have hydrocooling, or equivalent, to rapidly remove field heat after harvest and maintain maximum carrot quality. Close examination of the Western Australian industry reveals questions about its long term ability to meet increased export demand – see Section 2.3 below. Seasonal features of Western Australia’s year round production include:

- Best yields are achieved November and December – winter seeded, spring to early summer harvest
- Best quality is from July to December
- Hot weather affects crops, especially quality and a combination of heat and wet weather is problematic
- In January and February quality is affected by disease pressure.

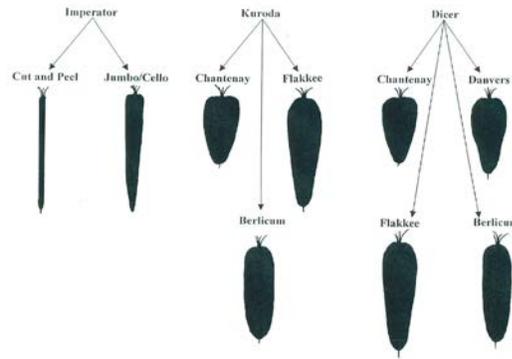
Western Australian production declines in late summer/autumn. This period of decline in Western Australia coincides with the peak of Tasmanian carrot production. Tasmanian exports complement Western Australian carrot shipments. Tasmania is able to offer a cooler late summer climate, fertile volcanic soils, sustainable production systems and integrated grower packers supported with appropriate technology. The Queensland carrot industry is oriented toward supply of the Australian domestic market. Victoria, the second largest carrot producing state, also has a strong current focus on supply to the domestic market. Exports of carrots from Victoria have halved since Japan lost interest in carrot juice in the early 2000s (AgEconPlus 2013).

Western Australia growers supplying export markets suggest a good average yield of small to medium carrots is between 70 tonnes and 80 tonnes per hectare, with top yields of up to 120 tonnes. Pack-outs are usually in the vicinity of 80% to 85% Class 1. Export returns of US\$10 per 10kg carton, are equivalent to around A\$7 at pack-house door, not including the cost of packaging. These returns make it profitable to grow carrots for export (personal communication Western Australian carrot growers).

2.2 Varieties

Australian production is based on the *Nantes* type– a small to medium sized non-tapering carrot best suited to salads and cooking and required to satisfy the requirements of Australian domestic retailers, particularly the two national supermarket chains (see ‘dicer’ type in Figure 2.1). South Pacific Seeds (SPS) distribute Stefano, a *Nantes* type carrot bred by Vilmorin, (a French seed company that is part of the Limagrain Group). Stefano dominates Western Australian carrot production. Mojo (renamed Nova), bred by Sakata and distributed by Lefroy Valley, is also popular in Western Australia.

Figure 2.1 Major Carrot Types



China, a major competitor in export markets also bases its export production on the *Nantes* type while US production is dominated on *Imperator*, a type that is also suitable for juicing. The US is present as a high cost small volume supplier in both the Malaysian and UAE markets.

Dutch bunching varieties are also grown in Australia. This type of carrot fills a small volume high value domestic niche. Dutch bunching carrots are hand harvested, washed and sold with their green tops in place ('fresh' carrots). In the past Australian growers, especially those in Tasmania have experimented with the Japanese *Kuroda* variety. Marketable yields from Australian *Kuroda* crops have been disappointingly low (AgEconPlus 2013).

2.3 Production Constraints

Western Australia, the state best positioned by geography to supply Malaysia and the UAE, is constrained in its ability to grow additional carrots. Carrot production is constrained by access to additional suitable land, irrigation water and issues associated with the sustainability of production. Each of these issues is briefly addressed in the section below.

Land and Water Availability

Myalup, Western Australia

- Additional production is constrained by the availability of additional land and water. The aquifer at Myalup is shallow and close to the coast. Salt water intrusion could be an issue if over-extraction for irrigation occurs. There are significant barriers to any substantial increase in carrot production in this area even if rotations are shortened. Irrigation water is the major production constraint.

West Gingin and East Lancelin, Western Australia

- Rotations in this area are very short. Carrots are grown by major producers in a 12 month rotation. Soils are suitable for carrots and water is not as constrained as Myalup. Land is available for additional carrot production, particularly at the northern end of Gingin. This land is close to the start of broadacre cereal production and there is potential for translation of disease to carrots. Also problematic is the fact that West Gingin/East Lancelin is warmer than Myalup. An all-round hotter climate in this area may limit production to the non-summer months.

Scott River, South West Western Australia

- Scott River between Augusta and Nannup on the south side of the Brockman Highway is not currently a carrot production area but has previously produced carrots and may have potential for industry expansion in the future, particularly for summer production. The area is cooler than West Gingin and East Lancelin. The area is currently used for dairy production and producers access one of two aquifers. Special permission would be required to access the deeper aquifer. Soils are black sand and suitable for carrots. They are quite acidic when first cleared.

Sustainability of Production

Metham Sodium

- Metham Sodium is a chemical soil fumigant that is important to current Western Australian carrot production and whose future is uncertain. Metham Sodium is usually used in rotation with Telone C35. Alternatives to Metham Sodium for weed, disease and nematode control are needed, as is investment in bio-fumigants. Project VG13045 is currently being conducted by project leader Dr Doris Blaesing (RM Consulting Group) on 'identification of Potential Alternatives to Metham Sodium'

Integrated Sustainability Solutions

- Western Australian carrot production systems are under stress. Investment in the development of sustainable carrot production systems will include rotations, water use efficiency, bio-fumigants, break crops and other aspects of production. A scoping study along the lines of the one developed by the Department of Agriculture and Food Western Australia (DAFWA) is further considered in Chapter 6 (key contacts Alan Mackay and Rohan Prince, DAFWA).

AgEconPlus (2013) concluded that a carrot export defence strategy is required across all nine export markets valued at more than \$1 million and would include diversification of production to reduce risks associated with disease, climate change and drought, and collaboration between growing regions including east coast production areas.

2.4 Carrot Export Profile

In 2012 total Australian carrot exports were valued at \$52.4 million which compared favourably with sales of \$40.0 million in 1998. Carrots account for more than 70% of the value of leviabile vegetable exports (AgEconPlus 2013).

Major export markets with sales of more than \$1.0 million per annum were the UAE, Singapore, Malaysia, Saudi Arabia, Qatar, Bahrain, Japan, Kuwait and Hong Kong. Approximately 73% of total Australian carrot export sales were directed into the Middle East. It has been suggested that Australian carrot exports might be increased by \$20 million per annum within three years if the right package of production and market place investments were put in place (AgEconPlus 2013).

Exports are undertaken primarily in 40 foot containers. A mix of 10kg and 20kg cartons is used, depending on the destination country and customer requirements. 10kg is more common in the UAE and 20kg in Malaysia. A container of 10kg cartons typically holds 20 pallets each of 128 cartons, plus upwards of 100 loose cartons, to maximise the use of container space.

Carrots have a long shelf life which makes them suitable for sea freight exporting, as long as the integrity of the cold chain is maintained. Unfortunately carrots have an incorrect image amongst marketers in Australia and internationally of being a "hard" vegetable like potatoes, onions and pumpkin, where the cold chain is not critical. This image needs to be addressed.

2.5 China a Threat in Export Markets

Nantes carrots from China dominate sales in both the Malaysian and UAE markets. Chinese carrots (approximately USA\$5.50 to A\$7.00 c&f per 10kg carton) are considerably cheaper than Australian carrots (US\$9.00 to US\$10.00 per 10kg carton) and are available all year round. Main production areas are Shandong Province in the north, and the largest export region, Hebei and Xiamin, and Fujian in the south.

The quality of Chinese carrots is reported to be improving. However, there is a prevailing view in the trade that Australian carrots are superior, a view backed by reports in the UAE that some Chinese carrots were being repacked in counterfeit Australian cartons.

There are a number of key differences between the two products. The Chinese product is reported to be lower in carotene with less colour, oxidises more quickly, less taste than Australian carrots and lower juice content. The *Nantes* type is grown in southern China and most are F1 hybrids. The Inner North of China (close to Mongolia) and the Fujian Province (close to the coast) produce higher quality carrots. Seed is supplied from Japan (Sakata, variety

name 316); Holland (Bejo Company) and via local Chinese breeding companies. Approximately 20% of production is based on pelleted seed (e.g. Bejo Company seeds); others use raw seed. Seeding is completed by hand or using a raw seed machine. Precision air seeders and Stan Hay belt seeders are not used. Harvesting is by hand and this results in less mechanical damage than say product sourced from Australia. There is room to further improve the quality of carrots sourced from China and volume is not an issue – see Table 2.2 (Personal communication, Robin Jiang, APEX Agri, Beijing, December 2013).

Table 2.2 ‘Top 5’ Carrot Producers and Australia (tonnes)

Country	Carrot Production (2007)	Carrot Production (2004)
China	9,085,793	8,292,500
Russian Federation	1,859,010	1,825,000
United States	1,421,230	1,900,110
Poland	928,230	800,000
Uzbekistan	815,000	499,850
Australia*	273,000	333,000

Source: FAOSTAT data, 2007. <http://top5ofanything.com/index.php?h=350626ee>; <http://www.carrotmuseum.co.uk/worldcarrots.html>

* Data sourced from the HAL Statistics Handbook 2012 and 2004

2.6 Be Aware of Vietnam as a Carrot Grower and Exporter

An interesting development since 2010 has been sourcing by Chinese companies of carrots grown around Hai Duong in the Red River Delta area of Vietnam, near Hanoi (see Figure 2.2 below).

Figure 2.2 Vietnamese Carrot Production has Professionalism and Scale



This significant production area on sandy alluvial soils was created after the government constructed levy banks to minimise flooding in the delta. Production is possible from November to April, with peak production in February. Like Chinese production, individual farms are generally small (usually less than one hectare), but there have been some large scale leases issued by the government; harvest is undertaken by hand. Carrots are sourced from a number of washing / grading / packing facilities. The main attraction for the investment by China is the lower cost, and availability, of labour in Vietnam. Carrot importers in Malaysia suggested the daily labour rate in Vietnam is approximately US\$6 per day, compared with US\$40 in China and US\$140 in Australia.

Initially Vietnamese varietal selection was poor, but more suitable varieties are now being grown, as evidenced by Vietnam carrots seen by the study team in Malaysia in March 2014. Vietnam is now growing Kuroda types (personal communication Jeroen Pasman, Fresh Studio Hanoi and confirmed Peter Scott, Sakata Seeds, May 2014). As a result

of improved variety selection, carrot quality is at least equal to that from China. Another constraint has been the short rotation between crops, with carrots grown annually, interspersed with potatoes. As a result, nematode pressure is high and increasing.

Importers involved in the Vietnam trade suggest 30% of the imports of low cost carrots in Malaysia between November and April are now Vietnamese. Vietnamese carrots in March 2014 were being quoted in Kuala Lumpur at US\$450 per tonne c&f, compared with US\$600 for Chinese carrots. Blurring the situation was the fact that many of the carrots originating in Vietnam were being marketed in “Carrots from China” cartons.

These importers forecast that within two to three years, Vietnam will displace China as the primary source of low-cost carrots, at least in Asia, during the November to April period. They suggested the market for Australian carrots should be largely unaffected, because buyers and consumers were already paying a premium for Australian carrots, and that should continue, so long as the premium can be justified. (Source: Keishan Trading and Techno Fresh Agro, March 2014).

2.7 Product and Service Innovations

Current and potential carrot products and international best practice are reviewed in this section, to provide a checklist for investigations in Malaysia and the UAE. Preliminary comments from the market place, expanded in later sections, are also supplied.

Current Australian Product Form

At the current time Australia supplies carrots to the Malaysian and UAE export markets in cartons weighing between 5kg and 25kg. Most Australian exports are a simple commodity line of small to medium (150mm to 200 mm) washed and seafreight supplied *Nantes* in a 10kg carton for the UAE and a 20kg carton for Malaysia.

Summary: Australian product is preferred in both these important markets, but competition is increasing, especially from China and increasingly from Vietnam in Malaysia.

Alternative Product Forms

Carrot products Australia may be able to supply to Malaysia and the UAE include:

- Pre-packs of 500g, 1kg, and 2kg in cartons
- Baby carrots
- Snack carrots
- Shredded carrots
- Carrot chips
- Crinkle cut coins
- Carrot sticks
- Microwavable carrots in a pre-pack.

Summary: Fresh, partially transformed is a market growing in significance that is dominated by the US. Some US value added products are seafreighted to Malaysia. The review team noted that no Australian food manufacturer is providing these carrot products at the current time.

Coloured Carrots

Coloured carrots have also been developed by the international vegetable seed companies and are available in Australia. HAL has invested in the development of purple carrots and Western Australian growers are producing this type e.g. Sumich (<http://www.sumich.com/purple-carrots.html>) and Patane Produce (<http://www.pataneproduce.com/view/carrots/purple-carrots>). Differentiation offered by coloured carrots includes (Nunhem / Bayer Crop Sciences, Standalone supplement in Euro Fruit Magazine February 2014):

- Orange – beta carotene which is converted in the body to vitamin A
- Yellow – lutein an antioxidant with capacity to protect eyes from macula degeneration
- Red – lycopene an antioxidant with cancer fighting properties
- Purple – contain an antioxidant called anthocyanin with heart health benefits

- White – phyto-chemicals which enhance the actions of nutrients and dietary fibre.

Advice from the market place in Dubai and Kuala Lumpur is that coloured carrots are only required in small volumes.

Summary: Small, niche market.

Fresh Juice Production

Fresh vegetable juices sold with three day shelf life in supermarket chains or juiced on site in shopping malls are increasingly popular in both Dubai and Kuala Lumpur. Carrot juice sales spike during Ramadan. While market advice is that the US style *Imperator* carrot produces the best juice, the *Nantes* type supplied by both Australia and China is being used for fresh juice production. Some food manufacturers interviewed indicated that bulk packs of larger Australian carrots, physically sound but with blemishes, may be suitable in some market segments. Others preferred Class One carrots that can be displayed prominently prior to juicing.

Summary: Significant and expanding market, in which Australia could be well positioned.

Organics, Fair Trade and Sustainability

Organic carrots are available in the UAE and Malaysia and can be supplied from Australia. Bauer Farms, based in the Lockyer Valley, Queensland is Australia's largest organic carrot grower.

Jannie Holtzhausen CEO of up-market supermarket chain Spinneys Dubai (in Euro Fruit Congress 2013 page 35) noted that 'It is not easy to get organic produce in the UAE. From a sourcing point of view, we focus far harder on clean, sustainable farming using good agricultural practices and trace-ability to sell good, nutritious, tasty products. I don't get emails complaining about lack of organics on the shelves but I do if we don't have enough high quality produce'. 'Fair Trade sadly became another marketing tool'. 'Our goal is to increase the amount of sustainably grown produce that we offer'. 'Our aim is to add a couple of sustainable growers each year'.

In Malaysia small volumes of organic carrots are on sale included those sourced from Australia.

Summary: Small, niche market.

Certification (e.g. ISO9001) and Food Safety

Euro Fruit Congress Magazine (2013 page 7) notes that 'ferocious competition between fresh produce traders is forcing companies to achieve ever-greater quality standards' and that as a consequence companies are 'adding ISO9001 to their HACCP certification to meet the requirements of catering companies, hotels and many retailers. Food safety is becoming more important in the Gulf and Dubai'.

While the literature would indicate that food safety and certification are important issues, interviews completed in field in 2014 would indicate that this is still a developing trend and may remain a second order priority for some considerable time. It was suggested in the UAE that food safety would need to be elevated to a high order political priority before certification would be a serious point of product differentiation. Certification is standard practice for growers who supply the Australian domestic market. In both the UAE and Malaysia (where food safety is a much more important consideration for consumers, particularly those with more discretionary income), Australia is recognised for the high standards of food safety in produce and the integrity of those standards.

Summary: Certification of itself is not a point of differentiation. Food safety is not yet a point of differentiation in the UAE, but it is a major point of difference in Malaysia for Australian fresh fruit and vegetables.

Building Relationships

Building relationships has been well demonstrated in the UAE, Malaysia and other markets as an effective means of competing against cheaper products that are marketed on price only. Examples include the activities of MLA, on behalf of the Australian meat industry, and US produce commodity boards, such as Washington Apple Commission, US Potato Board and California Table Grape Commission. Preference and premiums have been generated through a range of value-added services, to support sales programs for these and other products.

The types of services that may enhance Australian carrot sales in Malaysia and the UAE include:

- Crop updates/forecasts - Spinneys note that forecasting is very important to their business and this is best done with growers rather than middle men who have their own agendas (in Euro Fruit Congress Magazine 2013 page 35).
- Category management – partnering with retailers to:
 - Measure and manage the carrot category to improve sales and returns
 - Supply product all year round and grow the category’s shelf space with new product types and forms.
- Training and education – can be used to improve fresh produce management in retail and food service, creating partnerships between Australian carrots suppliers and their supermarket, hypermarket and food distributor customers.
- Joint promotions – while carrots are not subject to an industry promotions levy, R&D levy funds can be judiciously used in testing and piloting marketing initiatives aimed at expanding retail sales.
- Mixed consignment shipping – enhance existing skills in bundling of various vegetable and fruit types in shipments to suit individual customer needs. This service opportunity is relevant to sweet corn which is exported in smaller volumes by air. This ability is quite unique to Australia, with its range of products and markets-based exporters.
- Supply collaboration and coordination – coordination of carrot supply from other Australian states when Western Australian carrots may be of lesser eating quality or when required export volumes cannot be met.

Summary: Building relationships is an important way to differentiate in the market place and is a critical type of ‘value-adding’.

International Best Practice

Three international players widely regarded as leaders in the carrot value adding category are Grimmway and Bolthouse of the US and Harries of the Netherlands. These companies are leaders not only in innovative consumer-friendly products, but also for the marketing support backing those products.

Grimmway Carrots, Anaheim California (<http://grimmway.com/carrots/our-products/>)

- Branded products including ‘Biggest Loser’ reality TV tie in
- Pre-pack products for snacking
- Product forms include ‘sticks’, ‘coins’, ‘shredded’ and ‘baby’
- Dutch bunching lines sold as ‘fresh carrots’
- Microwavable products with appropriate packaging.

Bolthouse, USA (<http://www.bolthouse.com/products/carrots>)

- Premium sweet baby carrots
- ‘Matchsticks’ and ‘chips’
- Full range of sizes including catering packs
- Organic carrot lines.

Harries Concept Carrots, Netherlands (<http://www.harries.nl/en/products>)

- Harries new range includes candied carrots in ‘grab and go’ bags for snacking
- Presented as carrot sticks and balls in five 100 gram bags inside a colourful outer bag
- Expanded range of carrot based spreads and dips
- ‘Veggie-bites’ carrot based meatball replacements for vegetarians – made with carrot fibre and a creative way to add value to what was previously a waste product.

Summary: Innovative, products, branding and marketing support differentiate and create premiums.

These product and service ideas are further developed in Chapter 6 of this report.

3 Review of Existing Sweet Corn Production, Product and Export Data

3.1 Sweet Corn Production Profile

Sweet corn is grown in the warmer Australian states and production is dominated by Queensland and NSW – Table 3.1.

Table 3.1 Sweet Corn Statistics 2010-11

State	Tas	Qld	NSW	Vic	SA	WA	Total
Area (ha)	N/a	3,739	1,456	692	25	831	6,743
Production (tonnes)	N/a*	25,822	25,675	9,026	189	10,096	70,808
T/ha	N/a	7	18	13	8	12	10.5

Source: ABS (released May 2012). HAL Statistics Handbook shows production of 16 tonnes in 2008-09

The Queensland industry is oriented toward supply of fresh sweet corn for the domestic market and this is reflected in lower average yields – fresh sweet corn is harvested earlier and is lighter. The NSW sweet corn industry is geared to servicing the processing sector and approximately 90% of production is purchased by Simplot. Most sweet corn grown in Victoria is for the fresh market with around 30% directed to processing. Western Australian production is dominated by a single large grower with farms at Gingin and Broome and a packhouse at Wanneroo north of Perth.

Nationally the key sweet corn production areas in eastern Australia and their supply seasons are:

- Bowen/Burdekin Basin, Queensland: May to November
- Lockyer Valley, South East Queensland: November to May
- Gippsland, Victoria: December to early April.

Sweet corn production and processing is at least partially mechanised. Super sweets are mechanically harvested while baby corn, a niche fresh line, is hand harvested. Initial de-husking and trimming is mechanised, final de-husking and packing super sweet cobs onto trays is completed by hand. The Australian sweet corn industry is domestically focussed with small volumes typically airfreighted from the east coast as part of mixed export consignments. Domestic demand is greatest during winter months. Australian sweet corn supply is year round.

3.2 Varieties

Super sweet varieties are grown in Australia and products include yellow, white and bicolour / polka dot. New varieties are freely available to Australian growers. Seed supply is dominated by Snowy River Seeds marketed via Lefroy Valley Seeds. Lefroy Valley Seeds reports that the most popular type grown in Australia is yellow super sweet (personal communication Warren Ford, Lefroy Valley Seeds, December 2013).

Malaysia, a country that is almost self-sufficient in sweet corn, also grows tropical super sweet varieties. These could include the H5 variety developed by the Queensland Department of Agriculture, Fisheries and Forestry (personal communication Warren Ford, Lefroy Valley Seeds, December 2013).

3.3 Production Constraints

Australian production is unconstrained. However, sweet corn has a realistic 14 day shelf life which growers would like to see extended to 21 days (personal communication Warren Ford, Lefroy Valley Seeds, December 2013). A short shelf life means that exports must be air freighted rather than sent by slower and lower cost sea freight.

3.4 Sweet Corn Export Profile

In 2012 Australian sweet corn had an export value of less than \$0.5 million. Small volumes of sweet corn were exported by air freight to Japan (99% of sales), New Zealand, PNG and Indonesia. Small volumes were also exported to the UAE and Malaysia, as part of mixed airfreight consignments.

New Zealand is a major exporter of processed long life ‘pouch’ sweet corn (25,000t valued at \$50 million in 2012) and sales focus on Japan (see Leaderbrand website <http://www.leaderbrand.co.nz/products/fresh-produce/leaderbrand-pouch-corn/>).

Shelf stable long life sweet corn products were identified on supermarket shelves in both Malaysia and the UAE. These products are marketed by multinationals including the US firm Dole, mostly grown in Thailand and sell for less than A\$2/cob. Eating quality is not comparable to fresh sweet corn.

Australia has a potential comparative advantage in sweet corn exports - production is mechanised and a year round supply program has been developed. Value added products have shown potential on the domestic Australian market and may be applicable to overseas supermarkets. It was suggested that market research be completed on the prospectivity of Australian value added sweet corn exports in 2014. The recommendation recognised the reality of Australia’s future comparative advantage being in vegetable ‘products’ rather than price sensitive and undifferentiated ‘commodities’ (AgEconPlus 2013).

3.5 Product and Service Innovations

Australian growers are at the global leading edge of innovation in fresh sweet corn varieties, products and packaging. For example, products marketed include:

- Unhusked bulk (end trimmed loose)
- Pre-packed super sweet corn, cling film wrapped tray pack of 3 cobs weighing 500 grams
- Pre-packed white corn 500 grams
- Pre-packed bicolour / polka dot corn 500 grams
- Pre-packed corn cobbettes, 6cm cob sections, 9 to a tray, cling film wrapped 425 grams
- Sweet baby corn 125 grams
- Pre-packed organic corn 400 grams

Australian sweet corn industry R&D effort includes, but is not limited to:

Tenderness and Eating Quality – Introgression of Tender Germplasm

- VG10105 (Vegetable IAC Report 2013, page 9)
- Dr Solomon Fekybelu 07 46603661
- Goal is to further improve the eating quality of fresh Australian sweet corn
- Project is being run in conjunction with Snowy River Seeds.

Developing ‘Super Yellow’ Enhanced Pigment Sweet Corn for Eye Health

- VG07081 (Vegetable IAC report 2013 page 14)
- Tim O’Hare 07 5466 2257
- Goal is to increase zeaxanthin levels to protect the eye’s macular
- Resultant corn will have a ‘rich golden hue’ and be easily distinguished from regular corn.

Innovative Fresh Cut Ready to Use Corn Products for Retail and Food Service

- VG12018 (Vegetable IAC report 2013 page 3)
- Russel Rankin 0411 178 227
- Goal is to produce a shelf life beyond 10 days using techniques such as High Pressure Processing and Modified Atmosphere Packaging.

4 UAE Market Analysis

4.1 Macro Considerations

Market Access and Trade Relationships with Australia

- Phytosanitary certificates required for fresh vegetables otherwise access is straightforward.
- Bilateral relations between Australia and the UAE are warm, multi-faceted and growing rapidly.

- Bilateral relations are underpinned by extensive trade relations as well as people-to-people contacts arising from the strong growth of direct air links and a large population of approximately 12,000 to 15,000 expatriate Australians living and working in the UAE (DFAT website).
- By value, the UAE was the third largest purchaser of Australian fresh vegetables in 2012.

Demographics and Capacity to Pay

- Population: 5.31 million (2012 estimate).
- Changes in the number of expats mean that the population can swell to as many as 9 million.
- Population growth rate: 3.0% (2012 estimate).
- Median age is 30.2 years.
- Ethnic mix: Emirati 20%; western expats 5%; and Indian subcontinent guest workers 75%.
- Major cities: Abu Dhabi (666,000), Dubai (2.1 million), Sharjah, Al Ain, Ajman, Ras al Khaymah.
- GDP per capita US\$48,800.
- Economic growth 4% to 4.5% pa.
- In 2014 the UAE is fully recovered from the GFC linked construction crash of 2009.
- Growth in the food sector is forecast at 20% per annum through to 2018.

Government and Community

Austrade (2014) 'Connecting Australian Companies with Business Opportunities in the GCC'

- GCC governments intervene heavily in the economy, investing in housing, education, health, etc.
- The youthful population needs to be satisfied with their lifestyle as a trade-off for a lack of democracy. Governments are looking for international partners to provide services, jobs, training and skills to their people.
- The US is decreasing its footprint in the Middle East and this provides opportunities for Australia.
- GCC businesses seek long term partners and commitment from Australian businesses.
- The UAE has an expanding hospitality sector e.g. Dubai is hosting World Expo in 2020.
- Dubai is benefiting from instability in other parts of the Middle East (investment and tourism).
- Strengthening links with Australia driven by vastly improved aviation connections.
- 140 direct flights per week (an 'air bridge') means additional opportunities for Australian foods.
- Tourism, education also important. Food security is an issue and agribusiness is an opportunity.

Mark Morley – Austrade Food and Agribusiness 2014

- Increasing reliance in the GCC on imported food, and product is sourced from around the world.
- Local agricultural production is reliant on desalinated water and production is inefficient.
- One response has been to invest internationally to control sources of supply i.e. buy and/or lease land (e.g. Hassad of Qatar has made major investments in Australian farm land).
- Food subsidies are very important, when these are cut, widespread protest and political unrest.
- Across the Middle East there is an increasing emphasis on healthy eating.

Euro Fruit Congress Magazine 2013

- There is a trend toward direct sourcing in the GCC rather than reliance on re-export from Dubai.
- Big trend is quality – South Africa has been content to send second quality and no longer acceptable.
- Local companies are about creating and developing trustworthy brands (shorthand for quality).
- Brands are very important for re-export 'you don't have time to check each pallet before dispatch'.

Business Culture

- Business ability/competence is not well developed and is mostly transaction based.
- The most successful businesses are those run by Indian expats whose outlook dominates business culture and includes a strong primary focus on price.
- There is little due diligence, due to the large volumes of money and wealth in the local economy.
- There is a lot of investment but not a lot of skills to support the investment, especially in equipment; hence the value and importance of training.
- Exporters need somebody on the ground they can trust and who has a 'can-do' attitude.

4.2 Vegetable Sourcing and Utilisation – UAE

Market Dynamics

- In 2010 the UAE spent US\$6.9 billion on imported food (Trade Middle East Magazine 2012).
- Approximately 95% of fresh vegetables consumed in the UAE between October and May are imported. In the hotter months of June through to September all vegetables are imported.
- As a consequence of concerns about food security, the governments of the UAE are attempting to boost local production. To this end 30,000 government funded farms have been established in Abu Dhabi including 15,000 to produce fresh vegetables. While owned by local Emirati, they are operated and managed by guest workers. To date most local product produced on these farms has been disposed of at low prices through wholesale markets while a significant quantity has been dumped due to issues with oversupply and product quality (project communication, Dubai 2014).
- Organic products are on the rise in the UAE. In 2010 organic greenhouse farming increased by 15%, to a total output of 5,000 tonnes. Specialist organic retailers have been able to grow their store numbers in Dubai and expand into Abu Dhabi, Saudi Arabia and Qatar. This trend started with the expat population but has now been embraced by Emirati and guest workers (Trade Middle East Magazine 2013).
- However, organics is a trend growing off a very small base and the supermarkets maintain it is of minor importance to their businesses (personal communication with the supply chain in Dubai 2014).
- Price is the most important driver of fresh produce business in the UAE. Food safety / integrity are either not valued or of secondary importance to retailers and the supply chain.

Imports of Australian Fresh Vegetables

Table 4.1 shows Australia exported A\$14 million worth of vegetables to the UAE in 2012, 93% of which were carrots. Sweet corn was not recorded in the ITC Comtrade data. However, it is known that a small volume of sweet corn was airfreighted from Australia in mixed consignments sourced from growers and the wholesale markets.

Table 4.1 UAE Vegetable Imports from Australia 2010 to 2012 – Vegetables in Scope (\$AUD)

Vegetable	Value 2010	Value 2011	Value 2012
Broccoli	977,240	317,410	320,250
Beans	0	0	0
Capsicum	0	1,940	0
Carrots	11,821,450	11,009,720	13,835,250
Cauliflower	0	970	240
Celery	7,610	16,450	2,900
Leek	0	0	0
Lettuce - head	10,870	970	5,790
Lettuce – other	269,580	127,740	112,940
Peas	1,090	0	1,930
Squash and pumpkin	N/a	N/a	188,240
Sweet corn – frozen		970	970
Sweet potato	293,500	270,960	244,230
Total	13,381,340	11,747,130	14,712,740

Source: ITC Comtrade NB: sweet corn – fresh not reported

Competition for Australia in this market includes vegetables grown in all parts of the world. In particular South Africa, China the US and New Zealand were identified as highly competitive in the vegetable categories supplied by Australia (Jane Shanthi Mascarenhas, Austrade Dubai, November 2013).

Transport and Logistics

Australia is competitively placed to supply the UAE via both sea and air freight – Table 4.2.

Table 4.2 Relative Transit Times Australia and Major Competitors

Transit Times to UAE: Country	Sea (days)	Air (hours)
USA	28	15
Spain	19	8
China	15	8
India	4	4
South Africa	15	7
Australia – Brisbane	22	15
Australia – Sydney	17	14
Australia – Melbourne	14	14
Australia – Perth	15	11

Source: Speaker presentations from the Middle East Congress <http://www.me-congress.com/>, <http://www.searates.com/reference/portdistance/> and www.australiatrade.com.au

Key points in relation to UAE transport and logistics include:

- Jebel Ali seaport Dubai: number nine globally in terms of container movements in 2009. Forecast to handle 19 million TEUs (20ft container equivalent) in 2014 (up from 14 million TEUs in 2013).
- Dubai airport: Number two globally in terms of passenger movements and number three for freight.
- New airport at Al Maktoun near Jebel Ali seaport will handle 12 million tonnes of cargo per year.
- Rail network development has started within the UAE and will ultimately connect all of the GCC.
- Access to air freight space can be difficult from some Australian cities and is getting more difficult. The shift from Boeing 747s to Airbus A380s may actually further constrain air freight capacity.
- The cool chain functions effectively until product is unloaded at port. Data loggers often reveal heat stress once fresh vegetables are supplied to UAE importers and further along the supply chain.

Seasonality

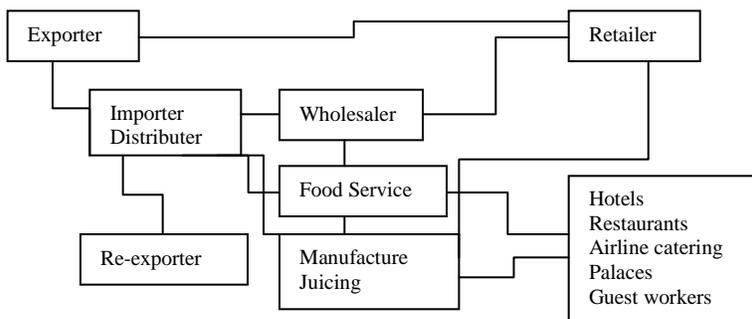
- Opportunities are available throughout the year supplying importers and the supermarket sector.
- In July/August it is simply too hot in the UAE (up to 50 degrees), many expats return home, there are few tourists and maintaining the cold chain is difficult.

4.3 Market Structure - UAE

Overview

Figure 4.1 shows the complex nature of the imported vegetable supply chain in the UAE.

Figure 4.1 UAE Fresh Vegetable Import Supply Chain



In terms of importance for distribution of imported fresh vegetables, the following was agreed with the supply chain in Dubai:

- 40% is re-exported to other countries
- 35% is destined for retail
- 25% is food service.

Importer Distributer

- Most exporters, Australia included, have the majority of their product routed via importers to wholesalers, then on the various market segments. This route has been preferred because payment is more assured and timely. By contrast, exporters (including those outside Australia) report payment can be slow (up to 120 days) when dealing direct with retailers. In addition many exporters have smaller programs supplying direct to retailers. Importers and retailers acknowledged an increasing shift by retailers to direct import, as UAE retail operations become more sophisticated.

Wholesalers and Wholesale Markets

- Most importers have wholesale / distribution operations.
- The Dubai Wholesale Market has an ‘interesting’ layout. There are separate sections for local / Middle East (especially Lebanon) product, potatoes (mostly Saudi Arabian), onions and ‘Western’ imports. This means that buyers have to visit each of these sections, in an area of at least 50 hectares.
- Importers/wholesalers of ‘Western’ products have air-conditioned facilities which go some way to maintaining the cool chain.

Food Service

- The UAE supply chain reports strong growth in this sector.
- UAE food service includes hotels, restaurants, palaces and airline catering. In addition feeding the guest worker labour camps is a significant undertaking. Single camps can require up to 75,000 meals per day.
- Emirates Airlines catering, based in Dubai, currently produces 160,000 meals per day with growth forecast to reach 300,000 meals per day by 2020. Emirates catering is supplied by multiple sources.
- McDonalds Restaurants with 1,000 outlets in the Middle East and North Africa (MENA) region indicate that the supply chain for food service is complex, inefficient and requires reform. McDonalds partners with Del Monte for items such as shredded lettuce. McDonalds has no plans to introduce carrot sticks, or other value-added carrots, to their UAE restaurants.

Manufacturing and Juicing

- Specialist manufacturers such as Del Monte and Barakat process imported vegetables and supply fresh cuts (e.g. carrot sticks) and juice (refrigerated carrot juice with a 3-day shelf life) to retailers and the food service sector. Most manufacturers and juice processors prefer Australian carrots.

Retailer

- UAE retail consists of supermarkets / hypermarkets of various sizes and sophistication.
- Traditional markets of the type found in other parts of the Middle East and Asia are non-existent.
- Retail margins on fresh produce are generally regarded to be around 40% on top of purchase price.
- Premium supermarkets include Spinneys, heavy with South African senior management, and Park n Shop of Hong Kong. Mid-level operations include LuLu, Carrefour and Choithram. Locally owned chains including Union Coop and Abu Dhabi Coop compete at the lower end, primarily meeting the needs of local Emirati.
- Smaller second tier supermarkets target mostly the large and low-paid guest worker population, who primarily originate from the Indian subcontinent and other parts of Asia (e.g. Philippines, Myanmar).
- The international makeup of consumers in the UAE means that the widest selection of fruit and vegetables is sold in Dubai supermarkets. The absence of local product, no tariffs on imports and sophisticated transport links, means that supply is truly international and very competitive.

Re-Export

- Dubai functions as a hub for the Middle East and supplies Saudi Arabia, Bahrain, Qatar, Jordan, Pakistan, India and others with a wide range of re-exported fresh produce. A role similar to that fulfilled by Hong Kong in East Asia and Singapore in South East Asia.
- While there is a trend towards many countries direct importing, the re-export trade remains significant (Trade Middle East Magazine 2013). Re-export is one of the reasons why data on the UAE looks so encouraging for Australian vegetables – see Table 4.1 above.
- Re-export means that there are more middlemen in the supply chain than are strictly necessary. However, middlemen assist with risk management and negotiation of an otherwise opaque business culture in markets such as the profitable but little understood Saudi Arabia.

4.4 Carrot Market - UAE

- Over the last three years China has dominated UAE's carrot imports and in 2012 had a market share of 66% whilst Australia had a market share of 29%. Over the last three years, the price of Australian carrots has been between 50% and 100% higher than the price of carrots from China (Figure 4.2 shows Chinese loose carrots, US prepacks and Australian loose carrots at retail in February 2014).

Figure 4.2 Chinese, US and Australian Carrots, Retail UAE (left to right)



NB: note superior colour of Australian carrots on right hand side

- Carrots from China are available all year round, plus local produce from Oman is of acceptable to good quality and is available January to March.
- Australia supplies a consistent volume and value of carrots to the UAE and demand is maintaining momentum (see Table 4.3 below).

Table 4.3 UAE Carrot Imports 2010 to 2012

VOLUME	CARROTS	UAE	UAE IMPORTS Tonnes													
Product : 070610 Carrots and turnips, fresh or chilled																
Exporters	2010	2011	YEAR 2012	share	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12
	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes
China	31,371	34,925	39,487	66%	1,738	2,378	3,046	1,238	1,885	4,246	4,771	3,231	5,118	4,702	4,191	2,944
Australia	15,988	15,191	17,417	29%	1,207	1,138	1,331	1,433	1,492	1,351	2,080	1,093	1,357	1,433	1,505	1,997
Oman	2,170	1,866	2,018													
United States	243	457	506	1%	21	6	39	56	59	48	18	10	119	47	33	49
Total Tonnes	51,958	53,289	59,952	100%	3,235	3,674	4,813	3,827	3,436	5,776	6,948	4,436	6,816	6,232	5,733	5,025
VALUE	CARROTS	UAE	UAE IMPORTS A\$ '000													
Product : 070610 Carrots and turnips, fresh or chilled																
A\$ '000	2010	2011	YEAR 2012	share	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12
China	15,065	16,798	20,141	56%	839	1,088	1,460	678	1,282	3,056	2,502	1,657	2,607	2,139	1,770	1,064
Australia	11,821	11,010	13,848	38%	921	905	1,029	1,118	1,205	1,143	1,635	833	1,120	1,139	1,218	1,583
Oman	1,339	1,006	1,179	3%												
United States	266	574	803	2%	37	12	44	70	76	64	28	18	188	80	87	99
Total A\$ '000	29,467	29,722	35,972	100%	1,379	2,058	2,554	1,874	2,563	4,345	4,218	2,574	4,055	3,375	3,077	2,774
A\$ per kg	CARROTS	UAE	UAE IMPORTS A\$ per kg													
Product : 070610 Carrots and turnips, fresh or chilled																
A\$ per kg	2010	2011	YEAR 2012		Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12
China	0.48	0.48	0.51		0.48	0.46	0.48	0.55	0.68	0.72	0.52	0.51	0.51	0.45	0.42	0.36
Australia	0.74	0.72	0.80		0.76	0.79	0.77	0.78	0.81	0.85	0.79	0.76	0.83	0.79	0.81	0.79
Oman	0.62	0.54	0.58													
United States	1.10	1.26	1.59		1.76	2.04	1.11	1.27	1.29	1.35	1.54	1.73	1.58	1.68	2.62	2.02
A\$ per kg	0.57	0.56	0.60		0.43	0.56	0.53	0.49	0.75	0.75	0.61	0.58	0.59	0.54	0.54	0.55
Sources : ITC calculations based on UN COMTRADE statistics based on MIRROR data from suppliers to UAE; Fresh Intelligence analysis.																
Notes : Data combined Carrots and Turnips - carrots estimated as more than 90%																
There is no data available for Oman in 2012 - used average of previous 2 years																

- The project team note that Western Australia may be best placed to supply additional carrots in late autumn/winter and spring before the summer heat affects product quality. This idea is further developed in later chapters.

4.5 Sweet Corn Market - UAE

- Australia exports a small volume of value-added (part-husked, trimmed and pre-packed) sweet corn to the UAE. Australian sweet corn is exported as part of mixed airfreight consignments mostly supplied by aggregators operating through the Australian wholesale markets in Brisbane, Sydney and Melbourne.
- South African Wig Wam Brand dominates the category (see Figure 4.3). Product quality is inferior to that supplied by Australia (e.g. stale appearance, kernels not filled, uneven ragged cob cuts) and sweet corn growers present on project field investigations were confident of supplying a superior product at competitive prices. Unlike carrots, sweet corn is a relatively niche category only required by high end supermarkets such as Spinneys and up market food service of the type supplied by Barakat.
- Other suppliers of fresh sweet corn to the UAE market are confined to Oman and Saudi Arabia – loose cobs with husk in place (supplying the low end of the market that Australia isn't able to compete in with expensive air freighted product). Omani sweet corn is available January to March and the quality is considered to be good. Saudi Arabian sweet corn is available November through March.
- China does not grow sweet corn and the market reports no experience with New Zealand sweet corn. It is thought that New Zealand focusses its export efforts on the lucrative Japanese market with long life 'pouch' sweet corn that is shelf stable for 15 months (a product similar to the New Zealand long life pouch is shown bottom left corner of Figure 4.3).

- Comtrade data does not include sweet corn. The UAE does not distinguish sweet corn in its trade data and is therefore contained in the “all other fresh vegetables not elsewhere specified” code – 070999 (Personal communication Wayne Prowse, Fresh Logic, November 2013).

Figure 4.3 South African Sweet Corn and Australian Carrots



NB: long life ‘pouch pack’ bottom left corner

4.6 Profile of Supply Chain Participants - UAE

Current and potential customers for Australian carrots and sweet corn are reviewed in two groups – importer / distributors and retailers. These two groups are the purchasers of Australian product.

Importers and Distributors

Major importers and distributors identified in the UAE are reviewed in alphabetical order.

AbuSeedo

- Broad spectrum UAE based importer and distributor.
- Indicated that Australia is being under-cut by lower quality, lower priced carrots at the present time. There was a temporary oversupply of carrots in the market during February 2014 field investigations.
- Carrots:
 - Import carrots from Western Australia.
 - Handle some Chinese carrots.
 - Chinese carrots currently around US\$6, compared to Australia US\$9 to \$10 per 10kg carton.
 - The price differential is acceptable to AbuSeedo and they recognise that product imported from China is of poor quality.
 - Australia was in the UAE market first and was able to develop a reputation based on year-round supply and superior quality.

- Sweet corn:
 - Source small volume of Australian pre-pack sweet corn as part of mixed airfreight consignments.
- Commented that Australia has a good upmarket image generally, and can achieve a premium for its fresh vegetables.

Barakat Vegetables and Fruits Company LLC

- Import a wide range of fruits and vegetables, including Australian carrots which are their exclusive source. Barakat also has a wholesale division. Barakat maintains outstanding import wholesale infrastructure in Dubai Wholesale Markets.
- Barakat has a state of the art value added facility close to the sea port at Jebel Ali that produces fresh juice and value-added carrot consumer packs for sale via retail (e.g. carrot sticks).
- Barakat imports a small volume of Australian sweet corn.
- The company specialises in food service including high end hotels, restaurants, palaces, plus Emirates Airlines catering and US Army in Afghanistan.
- Carrots:
 - Import three containers of Australian carrots per month on average for wholesale/food service and four containers per month for juice / value adding.
 - Sell through wholesale market operations and direct to food service.
 - The Jebel Ali processing facility uses up to 12 tonnes of Australian carrots per day – mostly large size which is best suited for value adding (e.g. carrot ‘sticks’) and juice.
 - The fresh juice division uses only Australian carrots and produces a very good quality product. Production is 2,500 litres daily of fresh carrot juice plus frozen juice for export to the Maldives and Seychelles.
- Sweet corn:
 - Source small volume of Australian pre-pack sweet corn as part of mixed airfreight consignments.
 - Believe they could sell 70 to 80 cartons of Australian sweet corn pre-packs per week.
- Barakat forecast that UAE produce consumption will double in the next 5 years.

Cost Cutters, Importers and Exporters of Fresh Fruits & Vegetables

- Import and distribute primarily to supermarkets but customer base also includes food service.
- Established in 2010 with many experienced ex-Kibson employees.
- Turnover growing at 10% to 15% per annum.
- This business emphasised the importance of investing in communication and trade education to build relationships with the supply chain to underpin export development.
- The UAE food service sector is growing and becoming more important to both the local economy and the Cost Cutter business.
- Carrots
 - Import two containers per month from Australia. Prices decline January through March (reflecting competition from Oman). Problem of copying / re-using Australian carrot cartons for Chinese carrots is creating confusion and undermining confidence in Australian carrots.
- Sweet corn
 - Local product is available from December through to March. GCC Governments are encouraging local vegetable production. Possible opportunity for Australia in other months.
- Interested in trialling sweet corn as part of an airfreight consignments with volume products such as table grapes.

Del Monte Foods UAE

- Importer, distributor and manufacturer and Dubai is Del Monte’s headquarters for the GCC region.
- Customer base is wholesale, food service but not retail.
- State of the art facilities, including fresh processing for McDonalds, value-added pre-packs and fresh juice.

- Carrots:
 - Sourced all year round from Australia, purchase four containers per week
 - Looking for an additional 3 to 4 containers per week year-round to sell via wholesale markets.
 - Specification: small/medium, class 1 and some class 2 in 10kg cartons.
 - Quality could be improved especially in relation to the external appearance of Australian carrots.
- Sweet Corn:
 - Not handled but might consider pre-packs
- Del Monte is certainly a company that should be cultivated by Australian vegetable growers.

Farm Fresh

- Importer and distributor
- Deal only in frozen carrots and sweet corn

Fresh Express

- Importer, distributor and manufacturer
- Food service importers
- Do not import Australian carrots or sweet corn

International Foodstuffs Co (IFFCO)

- Importer supplying into wholesale, retail, plus re-export. Re-export is an important and growing market for this business.
- Carrots
 - Import Australian carrots and estimate around 15 different Australian brands supplied into the market, each with a different price.
 - Small to medium size is the most popular and consistent grading is important.
 - Limited demand for carrot pre-packs which are not handled by IFFCO.
 - IFFCO report that pre-pack imports from the US are supplied via sea freight in small volumes.
 - Oman carrot production is significant from mid January to March and the quality is considered to be good. Oman carrots affect demand for Australian carrots during their season.
 - Australian carrots used primarily for salads and cooking, some are consumed in juice.
 - US carrots are preferred for juice due to the darker colour delivered by *Imperator* types.
 - Chinese carrots taste very different (bland) and have poor colour. Chinese carrot quality is improving but IFFCO believes the price differential will continue.
 - Ominously they note that 'China will own the UAE carrot market in 10 years time'.
 - There is room for improvement in Australian quality – i.e. eliminate cuts, blemish and improve colour.
- Sweet corn
 - IFFCO do not import Australian sweet corn.
 - Local (Al Ain), Oman and Saudi Arabian supply November to February. Quality is poor.
 - Sweet corn BBQs are popular with both the Emirati and guest worker population.
- IFFCO are a substantial importer.

KAF

- Broad spectrum importer/wholesale
- Carrots:
 - No carrots from Australia.
 - Mostly import from China – the price is lower but the taste is poor
- Sweet corn:
 - Main demand is from hotels and construction labour camps (probably cheap Saudi Arabian product), then retail, such as Carrefour
 - At retail everyone purchases sweet corn i.e. Emirati, guest workers and western expats i.e. there are no particular ethnic specific market segments.

Kibsons International

- Importer / distributor to retail and food service plus wholesale division.
- Wholesale (shop sales) focus on green grocers, 'B' grade supermarkets and hotels plus some sales to larger local families. Kibsons point out that households of 20 people are not unusual in the UAE.
- Retail distribution to supermarket chains such as Carrefour and Spinneys although more retailers are looking to source direct and cut Kibsons and similar importers out of the supply chain.
- Food service division caters to top end hotels and caterers via 40 refrigerated distribution trucks.
- Seafreight import division also distributes to other wholesalers. Some 50% of seafreight imports are redistributed to other GCC countries via specialised re-exporters based in the wholesale markets (no airfreight imports are re-exported).
- Currently Kibsons has a 2,500 pallet refrigerated capacity Distribution Centre (DC) and is building a 7,600 pallet capacity facility.
- Carrots
 - Sell only Australian carrots. 'Australian' carrots have cache in the market. Market is price sensitive. Quality carrots sell first in an oversupplied situation. Major demand in summer and Ramadan for carrots for juicing. Kibsons supply Barakat with some carrots for juicing. While the market is mature, demand will grow with population and opportunities such as the World Expo in 2020.
- Sweet corn
 - Kibsons believe there are opportunities for Australian sweet corn. Wig Wam South African sweet corn is not consistent nor of good quality.
- Kibsons are a well-established and substantial business. Their management is predominantly South African which may result in a preference for product sourced from that country.

Unifruitti Import and Distribution

- Only use Australian carrots.
- Customers include military, re-export and retail.
- Observed that big retail is attempting to import direct – a threat to their business.
- June to January best time for Australian carrots.
- Always interested in sea freight product; airfreight (i.e. sweet corn) is too expensive.

Retail

Retailers are reviewed according to the market they target, starting with the high end.

Spinneys (Waitrose UK)

- Highest end supermarket chain with 56 outlets.
- Strong concentration of South African senior management
- Buying offices in major sourcing regions including John Holland Foods (JHF), Melbourne Australia.
- Their aim is to control supply and cut out the middleman.
- JHF take ownership of product in Australia which is advantageous for supplier payment.
- Retail space is at a premium, for a new product to be listed one has to be de-listed. This can only be achieved by lower price and / or unique features.
- Concentration of South African expats in senior management results in a preference for South African product e.g. Wig Wam sweet corn (this information provided by Spinneys).
- Source Australian carrots approximately one container per fortnight.

ParknShop

- Hong Kong owned, with three stores aimed at mid to upper level customers.
- Given their limited footprint in the UAE, ParknShop was not visited during project field work.

LuLu Hypermarkets

- Mid-level supermarket chain with 109 outlets.
- 33% retail market share in GCC countries (UAE, Qatar, Oman, Kuwait, recently in Saudi Arabia where there is more interest in value added products).
- Imports direct to DCs in each country plus product redirected from Dubai.
- Working on the basis of 20% per annum growth in the fresh produce sector.
- Carrots – good year round demand for small to medium Australian carrots. LuLu purchase 50 containers per annum for the UAE and 150 containers in total for the GCC from Australia. LuLu do not sell Chinese carrots. Will sell Oman carrots alongside Australian but quality and appearance are not as good as the Australian product. Pre-packed carrots are 5% to 10% of sales. Interest in coloured carrots and baby carrots which are currently sourced from the US. LuLu believe the US supplies the best carrots for juicing due to deeper colour of *Imperator* types.
- Sweet corn – opportunities for small volumes from late March to November outside the local production window (Saudi Arabia, Oman and Jordan). Good demand in Arab and Pilipino demographics for BBQ sweet corn. White and yellow sweet corn both acceptable to LuLu Hypermarket customers.

Carrefour Hypermarkets

- French based retailer with 19% retail share in the GCC.
- Universal view in the UAE trade is that Carrefour is a difficult organisation with which to establish trade relationships. Carrefour was not visited during project field work.

Choithram Supermarkets

- Choithram is one of the biggest supermarket groups in the Middle East. They have 27 stores in the UAE. In addition, they also have a food service division, servicing hotels and restaurants.
- Choithram has just commenced direct import operations.
- Carrots – prefer Australian carrots due to superior quality (no cracks). Increasing demand for in-house juice production especially fresh carrot juice with a 3 day shelf life. Particularly strong demand for juice during Ramadan. Class 1 mixed size Australian carrots may be suitable for juice. There may be an opportunity for more cost effective packaging of carrots for juice e.g. bulk bins.
- Sweet corn – fresh product not marketed and not being considered.

Emirate Owned Retail Chains e.g. Union Cooperative, Abu Dhabi Cooperative

- Emirati customer base, catering to large family units.
- Stock Australian carrots.
- Union Coop stock Australian sweet corn.
- Union Coop aims at locals, with lower quality but fresher product.
- Union Coop is 10% to 20% cheaper than Spinneys.

4.7 Foundations of a Carrot Strategy - UAE

Strategic Insights

1. The market is undersupplied and Australia needs to invest to increase carrot production and exports.
2. The market requires high quality small to medium carrots in a 10 kg carton.
3. Retailers did not express interest in receiving value added forms – value adding is undertaken in Dubai by local firms.
4. Interest was expressed by some manufacturers / juice processors in composite class carrots in bulk packaging.
5. Australia remains product competitive in this market, based on taste, colour, year-round and reliable supply. Price differential with China should improve as the \$A trends down.
6. Key strategic threat is the improving quality of Chinese carrots.
7. The focus of Australia's investments in this market must be on quality e.g. elimination of damage.
8. The market has expressed interest in value-added services – e.g. crop forecasting/updates, education and training, category management expertise.

9. All strategies need to be mindful of growing the total market for Australian carrots, rather than the potential of new Australian exporters replacing existing exporters.
10. The model used by MLA is well regarded and promotion and market expansion is possible without a marketing levy, depending on the definition and scope of HAL-funded R&D.
11. A doubling of volume at current prices between 2014 and 2019 is achievable.

Strategic Plan Elements

Goal: *‘Double the volume of Australian carrot exports to UAE to 35,000 tonnes within 5 years through expanding sales into importers/distributors, modern retail, food service and the fresh juice market’.*

Possible Plan Elements:

1. Positioning: Maintain and grow market share through the importer/distributor channel, while actively engaging in more direct supply opportunities with supermarkets and the food service / manufacturing sector.
2. Secure preferred supplier status through ongoing improvement in quality – appearance, taste and colour.
3. Product: will continue to be high quality small to medium carrots in a 10 kg carton.
4. Production and post-harvest: sourcing additional product from the most appropriate areas at different times of the year and managing the cool chain to deliver quality product.
5. Service: provide regular and relevant communication with the trade (e.g. crop forecasting and updates), category management support, and retail and food service training, through ‘Team Vegetables’.
6. R&D focus: quality enhancement, bulk packaging and shipping of composite class carrots, extending the shelf life of fresh-squeezed carrot juice.
7. Market growth: maintain current prices and double sales in next 5 years (achievable and consistent with the growth forecast for the overall market).

Investment Options

The following ‘long list’ of investment options includes a preliminary evaluation (high, medium or low priority ranking). Ranking was assigned by the project team after considering both the option’s importance to export market development and the probability of success. A return on investment analysis was completed on high ranked priorities and is reported in Chapter 6 Three Year Market Development Investment Plan.

Table 4.4 Carrot ‘Long List’ for UAE ROI Analysis Prior to Development of the 3 Year Investment Plan

Option to grow exports	Description	Preliminary Ranking (H, M, L)
Overarching - Relevant to Carrots and Sweet Corn, UAE and Malaysia		
‘Team vegetables’	<ul style="list-style-type: none"> • Cross commodity investment to achieve scale economies in on-ground representation, trade communication, trade show participation and retail and food service training. From a market perspective, this should include ‘vegetables’ (vegetable levy products, potatoes, etc.) and create a linking device/brand to identify participating products. Based on successful precedents in the US. 	M
Export inspection	<ul style="list-style-type: none"> • Move to NZ style low cost self-assessments. Issue identified by the major Australian carrot grower and exporter. New arrangements proposed in WA mean there will be a three day delay between Authorised Officers requesting phyto certificates and their issue by AQIS, a situation that could be remedied by a NZ-based model. AQIS / Dept Agriculture full cost recovery model is hampering export growth. NB some form of self-assessment/completion of phyto certificates may already be in place. 	H (if the 3 day delay continues)
Partnering with MLA to develop meal solutions	<ul style="list-style-type: none"> • Meat & Livestock Australia (MLA) is well regarded in the UAE for its capacity to create demand and build market share for Australian red meat. • A research project looking at the potential of joint initiatives (meat and 	L

	<p>veg) was successfully floated with regional MLA staff in the Middle East (NB: there are no promotion dollars for vegetables). Cost Cutters emphasised the importance of trade education in the UAE market.</p> <ul style="list-style-type: none"> • This option is about product development rather than promotion. 	
Carrot – Production Issues		
Additional production areas – within WA and/or interstate	<ul style="list-style-type: none"> • Both the UAE and Malaysian markets have requested additional supplies of Australian carrots at current prices. • There is pressure on the sustainability (e.g. water and the absence of crop rotations) in existing WA production areas especially Myalup. • Investigate rotations, water use efficiency, bio-fumigants and break crops to improve the sustainability of WA carrot production. • Investigate the potential of new areas north of Perth for non-summer production. Investigate the feasibility of the cooler south west Scott River area. • Research the effectiveness of various bio-fumigants, which may permit shorter carrot rotations in WA, as a means of increasing production • Explore the potential for additional export production interstate. • Investment in this area would need to be mindful of the potential for crowding out i.e. new players flooding export markets. • This option embraces a ‘package’ that includes new production areas in WA; new areas interstate; and alternatives to metham sodium including break crops that act as bio-fumigants (e.g. mustard and sorghum). • 	H
Audit Australian carrot production – practices and varieties	<ul style="list-style-type: none"> • An audit is suggested to review the impact of current grower practices on pack out and export out turn. The audit would include production, harvest, post-harvest handling, grading and packing. • The audit would also address fundamental issues such as carrot type selection, variety and varietal disease resistance i.e. is Australia getting access to all the best varieties to keep it at the forefront in export markets. 	H
Training in growing to deliver for export market	<ul style="list-style-type: none"> • Develop and deliver training packages focused on advanced crop scheduling (timing and volume), BMPs, harvest (e.g. eliminate knife damage, skin damage, etc.) and post-harvest management for existing and prospective export oriented carrot growers. • Training systems would be based around ‘what the good growers do’ – a successful package developed for the subtropical banana industry in the 2000s. 	H
Quality issues – colour and taste	<ul style="list-style-type: none"> • Importers report there is scope to improve the colour of Australian carrots which is a function of variety, growing region, balanced fertiliser, post-harvest handling, etc. • Solution: Preparation of packages of production and post-harvest technologies and management practices (to allow new growers to participate and ensure that existing growers are supplying product of appropriate quality). Work with the ‘next generation’ of private agronomists to prepare and deliver these information packages (public sector agronomists skills need replacement). 	M
International fact finding – production in Holland and US	<ul style="list-style-type: none"> • A delegation of grower opinion leaders visit Holland and US to review first hand variety and technology innovation suitable for application on leading edge WA farms. • Findings to be reported to the planned export Symposium in late 2014. 	L
Carrot – Product / Service Opportunities		
Value added product feasibility study – domestic and export	<ul style="list-style-type: none"> • No capacity currently exists to produce value added carrot products in Australia for Australians. Value added products include straws, chips, baby (biggest), shredded, crinkle cut, etc. Addition of this capacity would provide Australia with a springboard for export value added sales. • A value adding facility might be best located on the east coast where there is a large domestic market for its products. Alternatively it might be better suited to WA where the biggest production base is located. Baby carrots 	M

	<p>treated properly have a long shelf life. NB one KL importer brings in 12 pallets of baby carrots monthly by sea from Grimmway USA and they have to last one month in storage.</p> <ul style="list-style-type: none"> The feasibility study would require a commercial partner who would make use of the study's findings. Potential commercial partners might include companies involved in the baby leaf sector as both value added carrots and baby leaf target the refrigerated section of supermarkets. 	
Australian 'Sweeter' carrots	<ul style="list-style-type: none"> Investigate the practicality of using Brix testing of sugar levels in Australian carrots, to measure and highlight their superior sweetness 	H
Juice - varieties	<ul style="list-style-type: none"> Identify dual purpose carrot types and varieties (fresh and processing) suitable for export markets and acceptable as fresh carrots to major domestic retailers. 	H
Juice – supply chain	<ul style="list-style-type: none"> Look at opportunities to provide larger composite class carrots in bulk to meet the demands of juice manufacturers like Del Monte and Barakat Commission R&D to develop bulk packaging and liner combinations as a means of more cost-effectively supplying juicing carrots. 	H
Juice – shelf life	<ul style="list-style-type: none"> Research technologies to extend the shelf life of fresh Australian carrot juice beyond the current 3 days. Australia would then be well placed to capture growth in carrot juice sales with a product and technology package that locks out other suppliers. 	H
Food safety Certification support (e.g. ISO9001)	<ul style="list-style-type: none"> Possible strong point of differentiation from Chinese carrots. Australia has a reputation for high food safety standards in the UAE Food safety is a second order priority for fresh produce buyers in UAE. Food safety certification is either a given for all export suppliers or it is not important to import buyers. Suggest only a monitoring brief on food safety certification for the foreseeable future. 	L
Crop reports / forecasts	<ul style="list-style-type: none"> Spinneys UAE note that forecasting is very important to their business and this is best done with growers rather than middle men who have their own agendas (Euro Fruit Congress Magazine 2013 page 35). This sentiment is shared by others in the market. Provide crop reports / forecasts that help retailers with their planning and help importers 'tell the story' of Australian carrots (e.g. 'an ideal growing season and our IPM system is going great') The model for this option is the "Well Informed Grower" program that operated successfully in apples, pears, stonefruit and cherries. An earlier feasibility study commissioned by HAL (AFFCO 2006) strongly supported the concept for carrots. This incarnation would focus on well informed growers, packers and export marketers. 	H
Organic carrots Coloured carrots	<ul style="list-style-type: none"> Very small niche already being supplied and of questionable profitability LuLu Hypermarkets expressed interest in shifting from US to Australian sourced coloured carrots. Coloured may be a growth opportunity linked to increasing concerns about diabetes / health. 	L
Carrot – Market Development		
Category management	<ul style="list-style-type: none"> Partnering with retailers and their suppliers (exporters and importers) to supply product all year round and grow the category's shelf space with new product types and forms Is the UAE markets sophisticated enough for this? Yes! This option would involve building on the expertise that marketers have developed with their domestic market programs and taking this knowledge overseas. Elements within the package would include provision of crop forecasting information, measuring and monitoring sales performance, trialling and supporting new lines, source product from other suppliers when, etc. 	M
Retail and food service training	<ul style="list-style-type: none"> Can be used to improve fresh produce management in retail and food service, creating partnerships between Australian carrots suppliers and their supermarket, hypermarket and food distributor customers. Training 	H

	<p>would address storage, handling, presentation, merchandising, etc.</p> <ul style="list-style-type: none"> • Training would create a partnership approach that is increasingly relevant as supermarkets seek to cut out importers. • The study team note that Australia could capture ‘first mover’ benefits as this service is not currently offered by any vegetable suppliers. 	
Australian vegetable product handbook	<ul style="list-style-type: none"> • MLA has an excellent book-like publication for provision to chefs and retailers on each meat cut and its use. Something similar could be developed for carrot products (varieties and especially value added lines, seasonality x growing regions, product nutrition and uses etc) • Ideally this publication would include material on all Australian vegetable exports (levied vegetables). This publication would also be a resource for retail and food service training. 	H
Trade communication	<ul style="list-style-type: none"> • Develop a seasonal newsletter to provide updates to the trade in the UAE on the crop and product trends (see above). • Information to populate the newsletter would be sourced from the ‘well informed grower’ group. 	H
Market development R&D	<ul style="list-style-type: none"> • While carrots are not subject to an industry promotions levy, R&D levy funds can be judiciously used in testing and piloting marketing initiatives aimed at expanding retail sales (e.g. trial shipments with VC partners). 	M
Supply coordination	<ul style="list-style-type: none"> • Coordination of carrot supply from other Australian states when Western Australian carrots may be of lesser eating quality or when required export volumes cannot be met. Information to assist with supply coordination would be sourced from the ‘well informed grower’ group. 	M
Seafreight and supply chain R&D	<ul style="list-style-type: none"> • No problems are reported with the seafreight supply chain to the UAE, although shipments from WA typically take 28 days. • Loss of cold chain integrity after arrival is an issue affecting the quality of Australian carrots, particularly through dehydration. Monitoring and measuring cold chains practices in the UAE is recommended, along with identifying remedial practices. 	H
Specialist on ground representation (Development Officer)	<ul style="list-style-type: none"> • To provide on the ground, independent, market intelligence, representation, reverse trade mission coordination etc. 	M

4.8 Foundations of a Sweet Corn Strategy - UAE

Strategic Insights

1. Good quality local sweet corn is available in raw product form from November to March.
2. Australia can't compete with sweet corn in a raw product form– Australia is reliant on expensive airfreight.
3. Seafreight technology is a possible area for research.
4. Varieties with a longer shelf life are a possible area for research.
5. A healthy year round airfreight market exists that is currently undersupplied by Australia.
6. South Africa 'owns' this market with a lower quality value added product (Wig Wam brand).
7. Australia could be price competitive in this market and this should improve as the \$A trends down.
8. Long life products have poor taste and provide little competition for fresh product.
9. The market requires high quality 500 grams pre-packs.
10. Large Australian growers have expressed interest in developing this market.
11. The market is in high end supermarkets and importers who supply food service.
12. High-end supermarket Spinneys is heavy with South African management and is believed to have a preference for sourcing from South Africa.
13. Spinneys has indicated that the quality of South African Wig Wam is acceptable.
14. Barakat (importer) is willing to trial new Australian suppliers immediately. They have expressed interest in 80 to 100 cartons per week (~ 50 tonne per annum).
15. Cost Cutter, Del Monte, Kibsons (importers) and Union Coop (retailer) have also expressed interest.
16. In total this market may be worth 200 tonnes per annum (4X Barakat), with a retail value in excess of A\$2 million.

Strategic Plan Elements

Goal: *'Take value added market share from South Africa and within 3 years grow it to 200 tonnes per annum for Australian suppliers'*

Possible Plan Elements:

1. Positioning: pre-pack to food service suppliers and high end supermarkets
2. Secure preferred supplier status through quality and service
3. R&D focus: new varieties, and new forms of packaging for longer shelf life
4. Build capacity by airfreighting mixed vegetable and fruit consignments (e.g. broccoli, grapes or melons)
5. Preparation of packages of production and post-harvest technologies (to allow growers to participate)
6. Relationship development (collaboration between Australian exporters)
7. Market growth target: increase sales from almost nothing to 200 tonne per annum.

Investment Options

The following 'long list' of investment options includes a preliminary evaluation (high, medium or low priority ranking). Ranking was assigned by the project team after considering both the option's importance to export market development and the probability of success. A return on investment analysis will be undertaken on high ranked priorities as part of investment plan preparation.

Table 4.5 Sweet Corn Options for UAE ROI Analysis Prior to Development of the 3 Year Investment Plan

Option to grow exports	Description	Preliminary Ranking (H, M, L)
Sweet Corn – Production Issues		
Varieties with longer shelf life	<ul style="list-style-type: none"> • Sweet corn currently has a reliable shelf life of 14 days, growers and exporters would really like 21 days • Review International seed company varieties and identify possible candidates for Australia. • While the Australian sweet corn industry is leading edge, it is possible given the low emphasis on export, that a recent search for long life varieties has not been completed. 	M
Training in growing to deliver for export market	<ul style="list-style-type: none"> • Develop and deliver training packages focused on advanced crop scheduling (timing and volume), BMP, harvest and post-harvest for prospective export oriented sweet corn growers. • Training systems would be based around ‘what the good growers do’. • Implementation of this option would be facilitated by existing research and modelling that includes crop scheduling and base temperatures for sweet corn. 	H
Sweet Corn – Product / Service		
Product presentation research	<ul style="list-style-type: none"> • Establish Australian sweet corn as an alternative to South African. • Growers are confident in their ability to displace South African value added sweet corn with a superior product. • Work with interested importer / distributors such as Barakat, Cost Cutter, Del Monte and Kibsons. • Work with growers to design more appealing labels and presentation styles. 	H
Atmosphere packaging to extend shelf life	<ul style="list-style-type: none"> • Investigate whether shelf life can be extended through different forms of packaging i.e. permeable membranes, modified atmosphere, etc. • See for example Stepac XTend modified atmosphere packaging http://www.dssmith.com/plastics/offering/flexible-packaging--dispensing-solutions/stepac-modified-atmosphere-packaging/products/retail/ • This is not long life ‘pouch’ style packaging, just extending the life of fresh product. 	H
Support trial shipments to the UAE	<ul style="list-style-type: none"> • Call for expressions of interest from growers, and trial ship sweet corn to the UAE as a research exercise. • Research mixed consignment shipping options and build capacity with trial shipment growers. Bundle the various vegetable and fruit types in shipments to suit individual customer needs. • This service development opportunity is relevant to sweet corn which is exported in smaller volumes by air. 	H
Commercial supply relationships	<ul style="list-style-type: none"> • Collaboration with Australian partners working together to develop sweet corn market. Collaboration would ensure that Australian product is better positioned to compete against South African Wig Wam and not confusing the market with an undifferentiated Australian offering. 	L

5 Malaysia Market Analysis

5.1 Macro Considerations

Market Access and Trade Relationships with Australia

- Phytosanitary certificates required for fresh vegetables otherwise access is straightforward.
- Malaysia is Australia's tenth largest trading partner (DFAT website)
- By value, Malaysia was the fifth largest purchaser of Australian fresh vegetables in 2012
- There are very good trade and personal relationships between the Australian vegetable industry and Malaysia especially WA vegetable growers.

Demographics and Capacity to Pay

- Population: 29.2 million (2012) with a sizable middle and upper income group of about 15 million persons (Sarah Xu, Dairy Australia). Urban population: 72%.
- Population growth rate: 1.5% and skewed toward youth – 28% of the population is under 15 years
- Major cities include Greater Kuala Lumpur (including Klang Valley) 7.2 million and Johor Bahru 958,000 (2012).
- GDP per capita: US\$17,200 (2012) and household incomes are continuing to grow in Malaysia
- Economic growth of 5% in 2013 with 3.1% unemployment
- GDP per capita would indicate capacity to pay for imported vegetables beyond the hotel sector.

5.2 Vegetable Sourcing and Utilisation - Malaysia

Market Dynamics

- Malaysia imports 70% of its food needs and food imports have been growing at an average rate of 23% per annum. The current growth rate is forecast to continue through to 2018
- Malaysia is the world's tenth largest importer of vegetables (Rabobank 2006)
- Fresh vegetables are mainly sourced from China, India and Thailand and in 2012 these three countries accounted for US\$709 million in fresh vegetable sales (Total Market Solutions 2014).
- Malaysia has developed a modern retail sector which in 2013 accounted for 30% of total vegetable sales and is forecast to reach 40% of total vegetable sales by 2018 (Total Market Solutions 2014).
- Malaysia has highly productive vegetable growing regions in the Genting and Cameron Highlands. Malaysia's food safety programs in these areas are also well organised (Bicknell 2012)
- Quality of produce from Cameron Highlands, predominately grown under protected cropping is excellent – across high value tomato, capsicum, eggplant, cucumber, lettuce and leafy lettuce.
- Production is primarily for domestic consumption, with some export to Singapore.

Imports of Australian Fresh Vegetables

Table 5.1 shows Australia exported A\$8 million worth of vegetables to Malaysia in 2012, 81% of which were carrots. Sweet corn is not recorded in the ITC Comtrade data. However, market research completed as part of this project would indicate that Malaysia is all but self-sufficient in sweet corn.

Table 5.1 Malaysia Vegetable Imports from Australia 2010 to 2012 – Vegetables in Scope (\$AUD)

Vegetable	Value 2010	Value 2011	Value 2012
Broccoli	202,190	167,420	213,849
Beans	0	970	970
Capsicum	4,350	5,810	11,580
Carrots	6,863,510	5,516,950	6,499,630
Cauliflower	139,140	25,160	95,061
Celery	617,430	569,020	551,210
Leek	10,870	4,840	10,620
Lettuce - head	70,660	67,740	111,010
Lettuce – other	442,420	348,380	372,620
Peas	9,780	970	14,480
Squash and pumpkin	N/a	N/a	100,400
Sweet corn – fresh	N/a	N/a	N/a
Sweet corn – frozen	5,440	2,900	7,720
Sweet potato	9,780	13,550	5,790
Total	8,375,570	6,723,710	7,994,940

Source: ITC Comtrade

Competition in the Malaysian market for Australia includes China, Thailand, Vietnam, Indonesia and a small volume of sea freight imports from the US, New Zealand, South Africa and Chile.

Transport and Logistics

Road links between Malaysia and trading partners such as Thailand, Vietnam and China are good and improving. Effective road links allow for the rapid transport of fresh produce including vegetables. Nevertheless Australia is competitive in both air and sea freight. Air freight capacity is ample and freight times are short. Sea freight times between major Australian ports to the Port of Klang in Malaysia are shown in Table 5.2.

Table 5.2 Relative Transit Times Australian Port and Klang, Malaysia

Australian Port	To Port Klang Malaysia
Brisbane	14-16
Sydney	17
Melbourne	15
Fremantle	8

Source: www.australiatrade.com.au

5.3 Market Structure - Malaysia

Overview

- In 2014 it is estimated that 70% of vegetables are sold through traditional markets. Traditional sales dominate small towns and suburban areas whereas supermarkets and hypermarkets dominate the large cities (Total Market Solutions 2014).
- Australian carrots are predominantly supplied into modern retail while Chinese carrots dominate traditional / wet market sales.
- Malaysia's demand for sophisticated food and beverage is increasing, especially with regard to quality, food safety and health/nutrition.
- Urban Malaysians are brand conscious and prefer to shop in stores which offer convenience and good product selections (Sarah Xu, Dairy Australia).
- Hypermarkets are now the dominant format in urban / metropolitan areas with about 45% to 60% of urban household shoppers using them as the main outlet for packaged groceries (Sarah Xu, DA).
- The modern retail sector continues to expand its footprint in Malaysia. Those present include Tesco Malaysia, Giant (Dairy Farm), Econ-save (locally owned), and Jusco/Aeon (Japanese owned). These chains mainly target medium to low income customers and work on a low price, high volume model. They advertise heavily in local newspapers.
- Also present are rapidly growing chains that target middle to high income groups. This group is expanding their floor space and chiller capacity for fresh produce. This demographic is serviced by the likes of Cold Storage, Mercato, Village Grocer, Jaya Grocer and MBG Fruit Shop. These chains hardly advertise but are service-oriented and have strong loyalty programs – this group of retailers has the infrastructure and desire to conduct promotional activities.
- Despite overall growth in the modern trade its overall share of fresh produce sales in Malaysia remains very low compared with that of the traditional retail trade – some say as low as 10% of the total. Total Market Solutions says 30% is modern retail in 2013 climbing to 40% by 2018.
- Traditional retail is structured around morning markets, night markets and farmers' markets, and small fresh produce vendors in these markets do very well.
- Although modern retailing is growing, as a result of increasing purchasing power, traditional markets remain popular as a source of fresh fruits and vegetables across all classes, because of the perception (and reality) of higher quality and fresher product. Traditional market vendors have a deserved reputation for knowing more about produce and their attributes. Both forms of retailing (traditional and modern) provide opportunities for Australian vegetables.

5.4 Sweet Corn Market - Malaysia

- Australia exports a negligible amount of sweet corn to Malaysia.
- Malaysia is mostly self-sufficient in sweet corn, it is available year round and the product is of good quality (Total Market Solutions 2014). Sweet corn is grown in Johor, a southern state of Peninsula Malaysia. Mascorn (<http://www.mascorn.com/>) is a major domestic and export supplier (Personal communication Retna Malar, All About Fresh Produce, Malaysia November 2013).
- Sweet corn is widely sold in the traditional markets as well as in modern supermarkets. It is estimated that traditional markets supply between 60% and 70% of Malay consumer's needs. The product is mostly retailed as whole cobs with the husk in place (Total Market Solutions 2014).
- Yellow, white ('pearl') and polka dot super sweet varieties are available in Malaysia. Baby sweet corn is either grown domestically or imported from Thailand. Malaysia also has a black sticky corn which is thought to be domestically grown (Total Market Solutions 2014).
- Comtrade data does not include sweet corn. Malaysia does use a 10 digit code for sweet corn – 0709990100 however there is no information beyond 2007. Prior to 2007 the import volumes were around 20 tonnes of which most was supplied by the US (10 tonnes), between 1 tonne and 2 tonne from Australia and balance from Thailand (Personal communication Wayne Prowse, Fresh Logic, November 2013).
- Currently a small volume of imports are sourced from the Philippines and Thailand and prices are low (i.e. \$1/kg retail). China does not grow sweet corn and is not a competitor in this market.

Table 5.5 Sweet Corn Product Type - Malaysia

Corn	Market Share (%)
Loose Sweet	54.5
Whole Packaged	40.0
Organic	5.0
Long shelf life e.g. Purple Sticky Corn	0.5

Source: Total Market Solution 2014

Total Market Solutions 2014

- Although small, sales of organic produce are expected to grow 10% pa through to 2018. Malaysia also grows organic corn for the retail market. Presently, almost all the organic sweet corns that are sold in the market are locally grown.
- Feedback from importers and retailers is that they think that it is very difficult for Australian sweet corn to compete in the Malaysia market. Presently, the market for Australian sweet corn is a very small niche. Total Market Solutions market check found only one high-end supermarket chain (3 stores) that bring in about 5 cartons/week in mixed air-freight consignments in the lead up to Christmas.
- The sales of this Australian sweet corn, according to the Supermarket Director, are still very small due to the big difference in pricing.
 - Sold in 2-cob value-added tray packs in the modern trade, similar to Australia
 - Yellow, Pearl and Polka-dot corn, like Australia
- Malaysian consumers like to hand select their sweet corn, which make loose sales popular, especially in traditional markets.
- The difference in price between the Australian corn and Malaysian grown corn is significant, while the difference in quality is not sufficient to convince the consumers to pay the difference. For example, retailers such as Giant have a big year-round market for cheap sweet corn (2 pieces for 3 Ringitt or A\$1.00), making it hard to compete. Loose cobs were selling in Jusco in mid March for A\$0.35 each.
- As a result, all importers and retailers suggest it is unlikely a viable market can be developed long-term for Australian sweet corn.

Australian Sweet Corn Compared to Malaysian Domestic (Total Market Solutions 2014)

Australia:

- There is presently almost no product in the market except for some air-flown sweet corn in one of the retail stores. Because of the minuscule volume, there is no reputation Australian corn and the consumers are not familiar with the product.

Malaysia

- Consumers are satisfied with the quality and taste of the locally grown sweet corn. The locally grown sweet corn is low cost and well-presented.

Conclusion on Australian Sweet Corn in Malaysia (Total Market Solutions 2014)

- There is no potential for Australian corn, other than a very small niche market.

5.5 Carrot Market - Malaysia

Overview

- Carrots are popular with the Malaysian consumers as they are used in all the different types of Chinese, Malay and Indian cuisines. Many use these carrots as they add taste as well as colour to the different dishes. In addition, carrots have a very good healthy image (Total Market Solutions 2014).
- Carrots are used by Malaysian consumers in cooking (stir fries, soups, curries), baking (cakes), home juicing and salads (Total Market Solutions 2014).
- In the last three years China has dominated imports with an 83% market share in 2012, followed by Australia with a 15% market share. Australian carrots have enjoyed a price premium over the Chinese product in the last three years; however in 2012 the price premium had decreased to 44%.
- Australia supplies all year round but there may be opportunities to build market share January to June
- Key carrot exporters are China and Australia. Niche value-added products are sourced from both the US and New Zealand.
- Vietnam has commenced shipping carrots in significant quantities, and volumes are forecast to increase much further, most likely at the expense of Chinese imports (see Section 2.5). Both China and Vietnam are closing the gap on Australian visual quality, although major points of difference remain with quality, taste and food safety.
- January to June: This is the least productive period for Western Australia, although export volumes remain consistent; Tasmania is an option during this window and a number of WA carrot growers are making strategic connections with, or investments in, Tasmania and vice versa.
- A higher proportion of carrots are shipped in 20kg cartons, compared with 10kg for the Middle East. In country pre-packing, either by importers or retailers, makes the larger carton more cost-effective.
- In summary: Australian carrots are the market leaders for quality, taste, sweetness and safety.

Table 5.3 Malaysia Carrot Imports 2010 to 2012

VOLUME	CARROTS	MALAYSIA															
MALAYSIA IMPORTS Tonnes																	
Product : 070610 Carrots and turnips, fresh or chilled																	
Exporters	2010	2011	YEAR 2012	share	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	
	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	
China	53,293	54,235	59,164	83%	4,845	4,554	6,320	4,761	4,338	4,341	5,855	4,566	4,901	5,306	4,514	4,865	
Australia	11,033	9,862	10,509	15%	912	878	981	600	933	729	933	1,061	1,041	753	845	841	
United States	239	273	390	1%	21	18	28	30	68	41	36	29	29	21	47	23	
New Zealand	217	271	366	1%				14	52	88	108	104					
Total Tonnes	65,942	65,147	70,925	100%	5,837	5,489	7,357	5,419	5,442	5,253	6,984	5,780	5,986	6,105	5,438	5,836	
VALUE	CARROTS	MALAYSIA															
MALAYSIA IMPORTS A\$ '000																	
Product : 070610 Carrots and turnips, fresh or chilled																	
A\$ '000	2010	2011	YEAR 2012	share	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	
China	29,039	29,661	37,503	78%	2,485	2,366	3,673	3,223	3,508	3,746	3,849	3,042	3,397	3,465	2,374	2,375	
Australia	9,531	9,032	9,543	20%	801	808	859	560	867	676	836	956	938	691	779	772	
United States	413	432	700	1%	42	41	65	63	95	81	79	61	61	38	45	29	
New Zealand	163	230	311	1%	-	-	-	14	45	97	77	77	-	-	-	-	
Total A\$ '000	39,544	39,659	48,294	100%	3,358	3,233	4,613	3,877	4,560	4,637	4,869	4,154	4,412	4,219	3,214	3,217	
A\$ per kg	CARROTS	MALAYSIA															
MALAYSIA IMPORTS A\$ per kg																	
Product : 070610 Carrots and turnips, fresh or chilled																	
A\$ per kg	2010	2011	YEAR 2012		Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	
China	0.54	0.55	0.63		0.51	0.52	0.58	0.68	0.81	0.86	0.66	0.67	0.69	0.65	0.53	0.49	
Australia	0.86	0.92	0.91		0.88	0.92	0.88	0.93	0.93	0.93	0.90	0.90	0.90	0.92	0.92	0.92	
United States	1.73	1.58	1.80		2.06	2.31	2.36	2.13	1.40	1.98	2.20	2.12	2.06	1.81	0.95	1.25	
New Zealand	0.75	0.85	0.85					1.02	0.87	1.11	0.71	0.74					
A\$ per kg	0.60	0.61	0.68		0.58	0.59	0.63	0.72	0.84	0.88	0.70	0.72	0.74	0.69	0.59	0.55	

Sources : ITC calculations based on UN COMTRADE statistics; Fresh Intelligenec analysis.

Notes : Over the longer term (not shown) China has increased from 6,900 tonnes in 2002 to 59,000 tonnes in 2012 while Australia has dipped from 34,000 tonnes in 2002 to 10,000 tonnes now

Domestic Production

- Generally speaking Malaysia is too wet to grow carrots, especially on the tropical lowlands – due to fungal diseases. There is some limited production in the Cameron Highlands, mostly dedicated to organic carrots, as returns from conventional carrots cannot compete with other vegetable crops for profitability. Quality is reported to be inferior to Chinese carrots.

Market Trends – Supplied by Consultants Total Market Solutions

- The market for organic carrots is growing by 5 to 10 percent annually, from a low base, driven by more affluent consumers concerns about safe food. Yellow organic carrots sell in KL for twice the price or ordinary organic product.
- Carrots for juicing are becoming more popular, in juice bars, restaurants and at home (Total Market Solutions, 2014).
- Current higher proportion of Chinese rather than Australian carrots in the food service sector (Total Market Solutions, 2014).
- In the modern retail outlets that sell bagged and loose carrots, the market share for the loose carrots is roughly around 60%. This is because most of the China carrots are sold loose.
- If we just look at the Australian carrots, the bagged carrots are more popular. The market share for the loose Australian carrots are roughly at an average of about 30%.
- Consumers trust the quality of the Australian bagged carrots.
- The sales of coloured carrots are still low. They are sold only at the retailers that target the more affluent high income consumers. Even at those outlets, the preference is still for the regular carrots
- Sales of organic carrots are growing. These organic carrots are mainly locally grown but there are some retailers that are selling the Australian organic carrots.

- The sales for the value added carrots like the baby carrots is still small but growing. They are sold mainly in the modern retail outlets that target the more affluent consumers.
- The trade estimates that about 20% to 30% of the carrots that are purchased by consumers or the foodservice trade are used for juicing.
- The market for Dutch bunching carrots is still small. They are sold only at the modern retail outlets that target affluent consumers.
- The trade believes that consumers purchase Australian carrots because:
 - Australian carrots are better in quality
 - They trust the source to provide them a healthy product
 - Australian carrots are better for juicing
 - When it comes to cooking, Australian carrots are normally used by the western restaurants, while the China carrots are used in the regular Chinese or local stir fry vegetable dishes
- The trade believes that sales for carrots will continue to grow. As consumers become health conscious, healthy vegetables like carrots will become an important part of their diet, for both juicing and cooking.

Table 5.4 Australian Carrots Compared to China

Australia	China
Better overall reputation	Cheap
No worries about food safety	
Uniform sizing, bright colour	
Better taste	
Higher juice content – less fibre (many believe that Australian carrot juice does not oxidise quickly)	Does not taste as good for juicing and many believe the juice from China carrots will oxidise quicker

Source: Total Market Solutions 2014

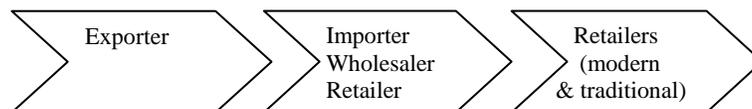
- Industry investment is justified to protect and grow the market for Australian carrots in Malaysia.

5.6 Profile of Supply Chain Participants - Malaysia

Importers and Distributors

- Figure 5.1 shows the typical fresh vegetable import supply chain.

Figure 5.1 Typical fresh vegetable import supply chain



- Importers and wholesalers have been critical to Australian exporters wishing to reach both modern and traditional markets in Malaysia. Importers and wholesalers take responsibility for import logistics and delivery to secondary cities and towns (Total Market Solutions 2014).
- However, the typical supply chain shown in Figure 5.1 is starting to break down. Larger retailers such as Giant, Tesco and AEON are now deviating from this model and importing their own fresh vegetable products. Even the smaller local supermarket chains that target more affluent consumers, including Village Grocer and Jaya Grocer, are arranging direct shipments of niche differentiated product.

A representative cross-section of major importers and distributors identified in Malaysia are reviewed below.

Euro-Atlantic

Lot 341, Jalan Pinggiran 2, Pinggiran Ukay, Hulu Kelang, Selangor, Malaysia

- Euro-Atlantic is a major Malaysian fruit and vegetable importer. They have branches in the major cities as well as one in East Malaysia.
- Euro-Atlantic's customers include most of the retail chains, as well as a number of food service customers, including hotel and restaurant chains.
- Euro-Atlantic are a very impressive importer with sound infrastructure, including a DC and delivery trucks
- Euro-Atlantic is active in marketing as well as sales, developing their own "First Pick" brand, at retail and consumer levels.
- Have a dedicated marketing and promotions division, which is active with retail promotions, including sampling, social media (Facebook and website) and merchandisers. AEON (where they have a close relationship), Isetan and Jaya Grocer are the main retailers serviced with promotions, and Tesco is now asking for support. Main retail activity is tending towards Road Shows (1 to 2 week promotions in malls, partnering with a retailer) and away from regular in-store promotions. Australian promotions have included avocados and potatoes (South Australia).

Project interview completed for carrots:

- Source Australian carrots and looking for additional Australian suppliers.
- Tasmania and Western Australian carrots are reported to be much the same for quality, and there is constant demand throughout the year. Source an average of 1 x 40ft container weekly, with 80% to 85% sold to retail.
- Size preference is small/medium for retail, some medium for high-end retail and small volume (5-6 pallets/month) of large for hotels.
- Buy all products loose in 20kg cartons. Pack some into 500g pre-packs, with most under their "First Pick" brand (if prepacks are done at source, there is often repacking because of broken carrots).
- For juice, Australian carrots are fresher and sweeter, with less fibre, meaning there is a higher juice recovery rate.

Khaishen Trading

PT31116, Jalan Rawang, Taman Selayng Baru, Batu Caves

- One of the biggest fruit and vegetable importers in Malaysia.
- Customers include all the major modern retail outlets as well as the traditional market retailers.
- Operate a major DC.
- In recent years, they have become a major importer of organic produce.

Project interview completed for carrots:

- Imported Australian carrots until 2006 then lacked suppliers until recently, when imports recommenced. Currently importing mixed containers of carrots, potatoes and onions from Western Australia. Expects to move soon to full container loads of carrots only.
- High-end retailers and traditional/wet markets, via wholesalers, prefer Australian carrots for their quality, taste and food safety.
- Traditional markets sell the best quality product and even high-end people (or their maids) shop there
- Believe most retailers want to stock Australian carrots only, because of the taste and food safety. Tried importing Dole shelf-stable ready-to-eat sweet corn from the Philippines. Unsuccessful even with promotion, basically because too expensive.
- Retailers like pre-packs because there is less damage and shrinkage, plus they are easier to manage and control in store. The trend is to more pre-packs in modern retail.
- Small to medium carrots are preferred as they are more conducive (shorter) for 500g pre-packs. Larger carrots mean weight wastage (i.e. significantly more than 500g is in a pre-pack)
- From previous experience with shipping Australian citrus and pears in bulk bins for pre-packs, these bins have good potential for shipping carrots. The concept proposed was to use tri-wall bins, either three or four high in containers, with plastic liners, to ship carrots in bulk for pre-packing in Malaysia. Pre-packs could then be delivered to retailers in the bins, for immediate display. False bottoms could be inserted to ensure only sufficient volumes were on display, to maintain quality. High quality graphics

- could be used on the bins to promote and communicate to customers. The company is keen to partner with suppliers to test the concept.
- Sales of Australian carrots can be increased significantly, through expansion of the regular carrot market, as well as organics and value-added carrots.
 - To increase sales, consumers need to be educated. Demonstrations/sampling at store level could feature juicing Australian carrots, to highlight the colour, taste and shelf life, supported with imagery of clean and clear-sky growing conditions to emphasise the safety of Australian product.
 - “Safe” is the reason for growth in organics generally. The market for organic carrots is small but growing and presents an opportunity for Australia, even if it is only one pallet in each container (5%).
 - The company is one of the main importers of value-added carrots (Grimmway) from the US, selling around 12 pallets monthly.

Nature First Harvest

- Started with mushroom farming and marketing (Champ Fungi Group). Export mushrooms to Thailand, Singapore and Philippines. Expanded into specialty lettuce, tomatoes, cucumbers and herbs grown hydroponically and marketed under “Live Well” brand. Excellent quality and packaging
- Nature First Harvest now import fruit and vegetables.
- Currently operate 28 refrigerated trucks servicing food service and retail from their DC.
- Pack a range of products, including sweet corn, under their ‘Live Well’ label.
- Customers include retail and food service.
- Approximately 80% of their produce business is raw product and 20% processed/value-added.

Project interview completed for carrots:

- Currently sourcing larger carrots for juicing for hotels from China.
- Keen to build retail business for carrots, as they believe they are a less price sensitive commodity.
- Currently selling medium size carrots.
- Australian carrots are of interest, if a point of difference can be developed (food safety, varieties, packaging, branding – could be their current brand).
- Small to medium carrots would work for retail, Larger are suitable for juice, and composite grade for value-adding
- Pre-packs and value-added packs could be marketed under the ‘Live Well’ label
- There is potential for organic carrots, both fresh and for juice, and the margins are higher than for conventional product
- Possibility of baby carrots for HORICO (food service).
- The juice market is growing, as more consumers become health conscious. ‘ABC’ (Apple, Beetroot and Carrot) in particular is very popular.
- Maybe juicing carrots for restaurants (not hotels).

Chop Tong Guan

805, Lorong Perindustrian Bukit Minyak 11, Bukit Mertajam, Penang.

- One of the biggest fruit and vegetable importers in Malaysia.
- Their headquarters are in Penang but they have modern facilities in the KL market centre.
- Chop Tong Guan has recently been appointed logistic agent for Tesco.
- Their major customers consist of the modern and traditional market retailers as well as the wholesalers.

Project interview completed for carrots.

- Importing Australian carrots for their retail customers. Size preference is small/medium for retail. They buy mainly bagged carrots.

Techno Agro Produce Sdn Bhd Sdn Bhd

Lot 8921, Jalan Besar, Telok Gong, Port Klang, Selangor Darul Ehsan, Malaysia

- Techno Agro Produce is one of the biggest vegetable importers in Malaysia.
- Their customers are from the major retail chains as well as the traditional trade. Approximately 80% of their produce business is through wholesale markets and 20% to retail.

- They import vegetables from all over the world, especially from China. They also bring in products from the US and Australia.
- A large Distribution Centre, capable of handling the volume from 45 containers, is located near the main port of Port Klang.

Project interview completed for carrots.

- Techno Agro Produce import Australian and China carrots. Approximately 60% to 70% are distributed through wholesale markets and the balance to retailers. A higher proportion of Australian carrots are sold to retail.
- 20kg cartons are becoming more popular for carrots.
- In the case of Australian carrots, they repack them under their own brand, primarily for Tesco, as well as distribute some original Australian brands. Report there is very consistent demand for Australian carrots from their customers.
- Pre-packing in market is cost-effective, because the minimum wage in Malaysia is 900 Ringgit per month (around A\$300). Employees are drawn from Vietnam, Cambodia, Bangladesh and Nepal. (Indonesia is also a common source of labour).

LLS Fresh Fruit Marketing Sdn Bhd

9, 10 & 14 HSK Industry. Warehouse Centre Mile 4, Penampang Road, Kota Kinabalu, Sabah, Malaysia

- One of the biggest fruit and vegetable importer in East Malaysia.
- Their customers include all the modern and traditional trade retailers and also wholesalers.
- They import the products to Kota Kinabalu and then truck them to the other major cities and towns in East Malaysia.

Project interview completed for carrots.

- Import a 40 foot container every 10 days. The Australian carrots are sold to their retailers and food service customers. Very consistent demand from the trade. They import mainly the small and medium size carrots.

Food Service

- The Malaysian food service market is valued at US\$5 billion to US\$6 billion and is expected to grow at between 7% and 10% per annum through to 2020 (Total Market Solutions 2014).
- Growth is fuelled by the increasing affluence of domestic consumers and growth in tourism.
- Malaysians are increasingly choosing to dine out with family and friends as a leisure activity.
- This positive outlook is supported by a large number of new food service players who have entered the market. This trend is across cafes/bars, fast food and full-service restaurants.
- A major Malaysian food service sector trend is the focus on healthier food and drink options. 100% fruit and vegetable juice drinks are very popular (Total Market Solutions 2014).

Hotels

- The number of hotels in Malaysia is growing rapidly to meet the demands of the tourism industry.
- Most 3 star and above hotels have food and beverage outlets.
- Fruit juice is a popular drinks item in hotel cafés and bars
- The 4 to 5 star hotels will normally serve 100% fresh squeezed fruit juice as their customers demand quality
- Carrot juice and carrot mixes are popular offerings on the hotel drinks menu.

Restaurants

- Restaurants account for 70% of total food service sales in Malaysia and the cuisine is rich and varied.
- More and more restaurants, especially those catering to the local population, are offering fruit juice on their drinks menu. Chinese, Malay or Indian restaurants all offer 100% fruit juice drinks, many of which are made on the premises using fresh ingredients. Fruit juices are also now sold in many coffee shops or at the drinks stall at many food courts or hawker centres.
- Carrot juice is a popular item that can be found on the drinks menu in most restaurants.

Juice Bars

- Juice bars in shopping malls are becoming more popular, as more consumers become health conscious
- Customers are not as price sensitive when purchasing juice as these juice bars sell these juices as a health booster.
- Juice bars receive carrots from a supplier everyday but will purchase from a nearby retailer if they run out of stock.
- Significant juice bar outlets include Boost Juice (Australia) and Juice Works. Juice Works was the pioneer of juice bars in Malaysia and Boost Juice, which now has around 12 outlets, was a later starter. These juice bar outlets are using Australian carrots as they believe that they are juicier and the carrot juice tastes better.
- Some retailers, such as AEON Big and MBG also have juice bars in their produce departments, and carrots are part of the juice offering. These retailers are not particular on their source of carrots, but MBG, which competes with the Juice Bars, is using Australian carrots for their juicing.

Retail

- In 2013 Malaysia supported 121 hypermarkets, 113 superstores and 133 department stores that operate supermarkets on their premises. Ownership was both foreign and local.
- Supermarket retailers (2011 data) include: 142 Giant/Cold Storage/Bintang/Mercato hypermarkets and supermarkets (Dairy Farm Group), The Store 56 supermarkets, Jusco and MaxValu (AEON) 28 stores. In mid-2012 AEON also bought Carrefour's Malaysian hypermarkets (AgEconPlus 2013).
- Until 2010 the supermarket sector had concentrated its activities in the major cities. In recent years the various international chains have opened new stores in more secondary cities and major towns (Total Market Solutions 2014).
- The supermarket sector expects growth as Malaysian shoppers place additional importance on convenience necessitated by rising incomes, difficulty in securing maids in middle and upper class households and difficulty securing foreign labour to staff the food service sector (Total Market Solutions 2014).

Table 5.6 Retail Profile, Malaysia

Up Market	
Village Grocer (3 outlets)	This is an upscale locally owned supermarket chain with stores in the affluent neighbourhoods. They are doing direct imports. Project interview completed. Source air-freighted carrots year-round by air. Carrots look and smell fresher. Selling Dutch bunching Australian carrots.
Jaya Grocer (9 outlets)	This is a fast expanding locally owned supermarket chain that does direct imports. Project interview completed.
Jasons (1 store)	This outlet is part of the Dairy Farm chain. They carry specially imported products that are not found in the other Dairy Farm stores
MBG (25 stores)	This is a fruit store chain with outlets targeting the upper middle and upper income consumers who are looking for quality produce and are not particular about the price. Source carrots for fresh juicing.
Cold Storage (19 stores)	Part of the Dairy Farm retail group targeting upper middle income consumers. If there is an alternative supply, they try not to sell China fresh produce in their stores. They do direct imports.
Mid-Range	
AEON Supermarket (27 stores)	This is a very successful Japanese-owned supermarket chain targeting the middle income consumers. Their concept is their supermarket will be located in the complex with their department stores to give their customers the convenience of buying everything in one location. They do direct imports. Project interview completed.
Hero Supermarket (12 stores)	Locally owned supermarket chain targeting the middle income consumer. They do direct imports for selected products.
Econsave Supermarket (52 stores)	Another locally owned supermarket. Most of their stores are located in the major towns and smaller cities. Project interview completed.

	They do direct imports for the popular fresh produce items.
The Store Supermarket (49 stores)	The Store is a major food retailer in Malaysia in terms of sales and number of outlets. This department store chain operates a supermarket within its store. It is a home-grown store that targets the mass market with price competitive products. The Store carries largely local products, with some of the more popular imported products that are also carried by competing stores
High-volume / hypermarkets	
Giant (149 stores)	Giant currently is the largest and only national retail chain in Malaysia. They operate hypermarkets and supermarkets in both West and East Malaysia in the cities and major towns. With their volume, the chain does a lot of direct imports and also brands some of the products with their house brand. Project interview completed. Import for all of Dairy Farm chains, covering Giant (hypermarkets), Cold Storage, Mercato and Jasons. Previously imported only Australian carrots, but now stock loose China carrots in Giant (for lower price points) and Australian carrots in other store formats, plus Australian prepacks, which are a more convenient option for customers. Because Giant is the majority of the Dairy Farm stores, the focus has been on price, but the company is realising low prices also mean low margins; more focus is now being given to Cold Storage and Mercato.
Tesco (49 stores)	The Tesco hypermarket chain is the second largest retail chain in Malaysia and one of the largest food retailers in Malaysia in terms of sales. It operates Tesco and Tesco Extra stores in the major cities in Malaysia. Tesco Malaysia is aggressively targeting the mass market with its competitively priced products. It carries mainly locally sourced products as well as a sizeable proportion of imported products. Project interview completed.
AEON Big (28 stores)	This chain was formerly Carrefour until the AEON group bought them in 2013. They just finished rebranding the stores and are now trying to capture market share from Tesco and Giant.
Mydin (12 stores)	This is the biggest locally owned hypermarket chain. They are building the largest hypermarket in Malaysia to be opened in late 2014. Do not presently do many direct imports.

Source: Total Market Solutions 2014

Retailers interviewed included:

GCH Retail

- Owned by Hong Kong based Dairy Farm Group and a major retailer across Asia
- Store formats include Giant hypermarkets (based on price and targeting the lower end of the market), and Cold Storage, Mercato and Jasons supermarkets
- The group is in a good position and poised for long term growth
- Traditionally the group has purchased from importers, and is moving to procure more product direct from suppliers. Connections with Australia are not strong, unlike South Africa and New Zealand.
- As a result, there is not a critical mass across a range of products from Australia.
- Perception of Australia generally is good quality, but high price
- Currently there is a Distribution Centre for produce only, handling around 20% of product, with the balance delivered direct to stores by suppliers/importers
- A new DC is planned for completion in 2015, resulting in around 60% of produce being delivered to stores through the facility.
- Using one DC and buying team has some disadvantages, when requirements are driven by the low-end, price-driven requirements of the Giant hypermarkets, which represents around 80% of business, Giant has the goal of being the price leader (cheapest).

- More upmarket stores in the company (Cold Storage etc) can suffer from receiving product that is not suited to their customers. This is being addressed.

Project interview completed for carrots.

- Some Australian carrots are imported, but most is from China, because of price and Giant requirements.
- Chinese quality is improving. On the other hand, carrot demand internally in China is increasing
- Greater store segmentation is planned, which could present opportunities for Australia in supplying Cold Storage, Mercato and Jasons.
- The use of pre-packs varies with the target market. In Giant the aim is to have 20% pre-pack and 80% loose (China). In the other formats, the aim is 80% pre-packs and 20% loose. It helps if people can touch and self-select product, but it results in more damage and shrink.
- Australian carrots are used in pre-packs in the upscale stores

Village Grocer supermarkets

- Currently the chain has 10 stores and two additional stores will open by the end of 2014, and the company is continuing to expand
- Customer base is middle to high-end, and quality is more important than price
- Produce is used as a point of difference
- Customers have lost confidence with Chinese products generally, due to food safety, artificially coloured carrots etc
- There is a noticeable trend towards organics

Project interview completed for carrots.

- All carrots are sold as pre-packs, to minimise moisture loss and quality.
- About 60% of sales are 500g small to medium sourced from their importer/supplier; 40% are packed in store and are larger carrots and random weight sales of around 800g.
- There is interest in purple carrots, both for fresh and to promote for home juicing, and other coloured carrots

5.7 Total Market Solutions 2014

Malaysian fresh produce consulting company Total Market Solutions was engaged to organise supply chain interviews and assist with profiling the Malaysian market. Total Market Solutions also provided suggestions for building the Malaysian carrot market, based on the experience in the market, including representing other produce organisations, such as US potato Board, Washington Apple Commission and California Table Grape Commission. Most of Total Market Solutions suggestions require marketing funds that are not available to the carrot industry, although significant components could fall within the R&D category. Total Market Solutions work is provided for the interest of relevant exporters and to inform resultant strategy.

1. Coordinated Market Development Program

Australia has a very good image with most Malaysian consumers. Many have studied or been to Australia for a holiday or at least heard about the lifestyle and quality of the produce. However, it is not sufficient to depend just on the 'Australia Fresh' campaign as it has very little profile in Malaysia.

A number of agriculture co-operator groups have achieved sales growth with a coordinated promotion program in Malaysia. A very good example is Meat & Livestock Australia (MLA). MLA has done a very good job in educating the trade and consumers about the quality of Australian red meat. MLA has training programs and promotions for the retail and food service sectors and even conducts competitions among chefs in Malaysia.

Dairy Australia has also been active in the Malaysia market, especially in trade education. This has increased imports, as well as usage and consumption of Australian dairy in this market.

Other agricultural groups that have good promotion programs that have been successful in growing the demand for their products in the Malaysia markets include:

- US Potato Board is a good produce model, first targeting the trade, then consumers, resulting in growth in the whole potato category, which has also benefited Australia
- Zespri New Zealand kiwifruit
- California Table Grape Commission
- Sunkist citrus
- Avocados Australia, with good results in positioning avocados as a healthy food

2. Conduct Trade Education and Training

Malaysia retail chains are expanding rapidly. This has made staff education an important activity that needs to be conducted on a regular basis, as the floor staff and buyers are always changing. The training can be conducted by various means with the various retail chains.

The retailers understand the importance of handling fresh produce correctly to reduce shrinkage in their stores and to help increase sales. They are very open and keen to partner with organisations that are able to support their training endeavours.

3. Consumer Communication Program

As Malaysian consumers become more affluent, topics such as food security and sustainability are becoming more important to consumers. Malaysian consumers are becoming more aware of the source of the produce that they consume, and they want to ensure that they and their family are getting safe produce from a trustworthy source.

It is important to have a communication program targeted at consumers to help make Australian carrots the preferred source of the Malaysian consumers. This program will include providing consumers with new ideas on how to use Australian carrots as well as health-based reasons to increase their consumption.

Table 5.7 Suggestions for Market Development Prepared by Total Market Solutions

Strategy	Detail
Consumer Education and Communication	<ul style="list-style-type: none"> • Teach Malays the right way to consume the product, nutrition and quality • Advertorials in consumer magazines and newspapers • Cooking demonstrations to educate the consumers on new and different ways to use the product • Media event providing information for the trade • Press releases with interesting new angles
In store promotion	<ul style="list-style-type: none"> • Demonstrators are stationed at the high traffic outlets to conduct sampling activities • Attractive displays are set-up at the stores using POS materials educating consumers about the product
Specially Printed POS/ leaflets	<ul style="list-style-type: none"> • To provide important information to the consumers such as nutrition values and correct ways to consume the product.
Foodservice Promotions	<ul style="list-style-type: none"> • To encourage the various restaurants and hotels to utilize the product by conducting promotions for new items on their menu • To encourage the foodservice operators to let the consumers know that they are using the product.

Source: Total Market Solutions 2014

The work completed by Total Market Solutions has contributed to preparation of the following preliminary carrot strategy for Malaysia.

5.8 Foundations of a Carrot Strategy - Malaysia

Strategic Insights

1. There is potential for significant growth in Australian carrot exports to Malaysia.
2. The market opportunity is with both the supermarkets/hypermarkets, their suppliers in urban areas and traditional markets in more affluent areas of Kuala Lumpur/Klang Valley.
3. Strategy will include initiatives to capitalise on the growth in direct supply to the supermarket sector.
4. The market requires high quality small to medium carrots predominantly in 20kg cartons.
5. Carrot juice is a growth market and the preference is for Australian carrots in more upmarket outlets.
6. Fresh juice from Australian carrots can be used to clearly be a differentiator with China and Vietnam – through colour, taste, freshness, shelf life and safety. These attributes can be extended to encourage the purchase of whole carrots.
7. *Nantes* carrots are preferred, as they are more suitable for both 500g pre-packs (because of their length) and loose sales.
8. Food safety is important with the increasing numbers of middle and upper class consumers. Food safety is a key point of difference for Australia.
9. Niche markets exist and are growing for organic carrots and coloured carrots.

Strategic Plan Elements

Goal: Double the volume of Australian carrots exports to Malaysia to 20,000 tonnes within 5 years through expanding sales into modern retail, targeted traditional markets, food service and the fresh juice market.

Possible Plan Elements:

1. Positioning: Maintain and grow market share through the importer/distributor channel, while actively engaging in more direct supply opportunities with supermarkets and the food service / manufacturing sector
2. Secure preferred supplier status through ongoing improvement in quality – appearance, taste and colour
3. Product: will continue to be high quality, predominantly small to medium carrots in 20 kg cartons
4. Service: provide regular and relevant communication with the trade (e.g. crop forecasting and updates), category management support, and retail and food service training, through ‘Team Vegetable’
5. R&D focus: sustainable production systems within the land and water constraints in WA, feasibility of additional production areas in WA, quality enhancement, bulk packaging and shipping of composite class carrots, extending the shelf life of fresh-squeezed carrot juice, dual-purpose fresh market and juice carrots to satisfy export and domestic markets, profitable organic and coloured carrot production.
6. Market growth: maintain current prices and double sales in next 5 years.

Investment Options

Most of the following ‘long list’ of investment options is consistent with the list developed for the UAE, reflecting the many similarities between the two markets from the perspective of Australian carrots. Again the list includes a preliminary evaluation (high, medium or low priority ranking). Ranking was assigned by the project team after considering both the option’s importance to export market development and the probability of success. A return on investment analysis will be undertaken on high ranked priorities as part of investment plan preparation.

Table 5.8 Carrot ‘Long List’ for Malaysia ROI Analysis Prior to Development of the 3 Year Investment Plan

Option to grow exports	Description	Preliminary Ranking (H, M, L)
Overarching - Relevant to Carrots and Sweet Corn, UAE and Malaysia		
‘Team vegetables’	<ul style="list-style-type: none"> • Cross commodity investment to achieve scale economies in on-ground representation, trade communication, trade show participation and retail and food service training. From a market perspective, this should include ‘vegetables’ (vegetable levy products, potatoes, etc.) and create a linking device/brand to identify participating products. Based on successful precedents in the US. 	M
Export inspection	<ul style="list-style-type: none"> • Move to NZ style low cost self-assessments. Issue identified by the major Australian carrot grower and exporter. New arrangements proposed in WA mean there will be a three day delay between Authorised Officers requesting phyto certificates and their issue by AQIS, a situation that could be remedied by a NZ-based model. AQIS / Dept Agriculture full cost recovery model is hampering export growth. NB some form of self-assessment/completion of phyto certificates may already be in place. 	H (if the 3 day delay continues)
Partnering with MLA to develop meal solutions	<ul style="list-style-type: none"> • Meat & Livestock Australia (MLA) is well regarded in Malaysia for its capacity to create demand and build market share for Australian red meat. • This option is about product development rather than promotion. 	L
Carrot – Production Issues		
Additional production areas – within WA and/or interstate	<ul style="list-style-type: none"> • Both the UAE and Malaysian markets have requested additional supplies of Australian carrots at current prices. • There is pressure on the sustainability (irrigation water supply and the absence of crop rotations) in existing WA production areas especially Myalup. • Investigate rotations, water use efficiency, bio-fumigants and break crops to improve the sustainability of WA carrot production. • Investigate the potential of new areas north of Perth for non-summer. Investigate the feasibility of the cooler south west Scott River area. • Research the effectiveness of various bio-fumigants, which may permit shorter carrot rotations in WA, as a means of increasing production • Explore the potential for additional export production interstate. • Investment in this area would need to be mindful of the potential for crowding out i.e. new players flooding export markets. • This option embraces a ‘package’ that includes new production areas in WA; new areas interstate; and alternatives to metham sodium including break crops that act as bio-fumigants (e.g. mustard and sorghum). • http://www.abc.net.au/news/2014-05-15/chemical-free-spuds/5460802 	H
Audit Australian carrot production – practices and varieties	<ul style="list-style-type: none"> • An audit is suggested to review the impact of current grower practices on pack out and export out turn. The audit would include production, harvest, post-harvest handling, grading and packing. • The audit would also address fundamental issues such as carrot type selection, variety and varietal disease resistance i.e. is Australia getting access to all the best varieties to keep it at the forefront in export markets. 	H
Training in growing to deliver for export market	<ul style="list-style-type: none"> • Develop and deliver training packages focused on advanced crop scheduling (timing and volume), BMPs, harvest (e.g. eliminate knife damage, skin damage, etc.) and post-harvest management for existing and prospective export oriented carrot growers. • Training systems would be based around ‘what the good growers do’ – a successful package developed for the subtropical banana industry in the 2000s. 	H
Quality issues – colour and taste	<ul style="list-style-type: none"> • Importers report there is scope to improve the colour of Australian carrots which is a function of variety, growing region, balanced fertiliser, post-harvest handling, etc. • Solution: Preparation of packages of production and post-harvest technologies and management practices (to allow new growers to 	M

	participate and ensure that existing growers are supplying product of appropriate quality). Work with the ‘next generation’ of private agronomists to prepare and deliver these information packages (public sector agronomists skills need replacement).	
International fact finding – production in Holland and US	<ul style="list-style-type: none"> • A delegation of grower opinion leaders visit Holland and US to review first hand variety and technology innovation suitable for application on leading edge WA farms. • Findings to be reported to the planned export Symposium in late 2014. 	L
Carrot – Product / Service Opportunities		
Value added product feasibility study – domestic and export	<ul style="list-style-type: none"> • No capacity currently exists to produce value added carrot products in Australia for Australians. Value added products include straws, chips, baby (biggest), shredded, crinkle cut, etc. Addition of this capacity would provide Australia with a springboard for export value added sales. • A value adding facility would be best located on the east coast where there is a large domestic market for its products. COMMENT: maybe it could be where the biggest production base is located, as baby carrots treated properly have a long shelf life, from US experience (one importer in KL brings in 12 pallets of baby carrots monthly by sea from Grimmway in the and they have to last one month in storage). • The feasibility study would require a commercial partner who would make use of the study’s findings. Potential commercial partners might include companies involved in the baby leaf sector as both value added carrots and baby leaf target the refrigerated section of supermarkets. 	M
Australian ‘Sweeter’ carrots	<ul style="list-style-type: none"> • Investigate the practicality of using Brix testing of sugar levels in Australian carrots, to measure and highlight their superior sweetness 	H
Juice - varieties	<ul style="list-style-type: none"> • Identify dual purpose carrot types and varieties (fresh and processing) suitable for export markets and acceptable as fresh carrots to major domestic retailers. 	H
Packaging	<ul style="list-style-type: none"> • Commission R&D to develop bulk packaging and liner combinations as a means of more cost-effectively supplying carrots for in-country pre-packing 	H
Juice – supply chain	<ul style="list-style-type: none"> • Look at opportunities to provide larger composite class carrots in bulk to meet the demands of juice manufacturers like Del Monte and Barakat • Commission R&D to develop bulk packaging and liner combinations as a means of more cost-effectively supplying juicing carrots. 	H
Juice – shelf life	<ul style="list-style-type: none"> • Research technologies to extend the shelf life of fresh Australian carrot juice beyond the current 3 days. • Australia would then be well placed to capture growth in carrot juice sales with a product and technology package that locks out other suppliers. 	H
Food safety Certification support (e.g. ISO9001)	<ul style="list-style-type: none"> • Possible strong point of differentiation from Chinese carrots. • Australia has a reputation for high food safety standards in Malaysia • Malaysia has significant market segments which value food safety, but additional certification does not warrant the effort and expense. • Food safety certification is either a given for all export suppliers or it is not important to import buyers. • Suggest only a monitoring brief on food safety certification for the foreseeable future. 	L
Crop reports / forecasts	<ul style="list-style-type: none"> • Provide crop reports / forecasts that help retailers with their planning and help importers ‘tell the story’ of Australian carrots (e.g. ‘an ideal growing season and our IPM system is going great’) • The model for this option is the “Well Informed Grower’ program that operated successfully in apples, pears, stonefruit and cherries. An earlier feasibility study commissioned by HAL (AFFCO 2006) strongly supported the concept for carrots. This incarnation would focus on well informed growers, packers and export marketers. 	H
Organic carrots Coloured carrots	<ul style="list-style-type: none"> • Currently niche markets which are growing. Organic carrot sales growth is estimated at 5-10% annually. 	M

	<ul style="list-style-type: none"> • Top-end retailers were selling Australian purple carrots, and some also stocked New Zealand coloured carrots (with tops on) in source pre-packs Coloured may be a growth opportunity linked to increasing concerns about diabetes / health. 	
Carrot – Market Development		
Category management	<ul style="list-style-type: none"> • Partnering with retailers and their suppliers (exporters and importers) to supply product all year round and grow the category’s shelf space with new product types and forms • Is the Malaysian market sophisticated enough for this? Yes! • This option would involve building on the expertise that marketers have developed with their domestic market programs and taking this knowledge overseas. Elements within the package would include provision of crop forecasting information, measuring and monitoring sales performance, trialling and supporting new lines, source product from other suppliers when, etc. 	M
Retail and food service training	<ul style="list-style-type: none"> • Can be used to improve fresh produce management in retail and food service, creating partnerships between Australian carrots suppliers and their supermarket, hypermarket and food distributor customers. Training would address storage, handling, presentation, merchandising, etc. • Training would create a partnership approach that is increasingly relevant as supermarkets seek to cut out importers. • The study team note that Australia could capture ‘first mover’ benefits as this service is not currently offered by any vegetable suppliers. 	H
Australian vegetable product handbook	<ul style="list-style-type: none"> • MLA has an excellent book-like publication for provision to chefs and retailers on each meat cut and its use. Something similar could be developed for carrot products (varieties and especially value added lines, seasonality x growing regions, nutrition and uses etc.) • Ideally this publication would include material on all Australian export (levied vegetables). This publication would also be a resource for retail and food service training. 	H
Trade communication	<ul style="list-style-type: none"> • Develop a seasonal newsletter to provide updates to the trade in Malaysia (and the UAE) on the crop and product trends (see above). • Information to populate the newsletter would be sourced from the ‘well informed grower’ group. 	H
Market development R&D	<ul style="list-style-type: none"> • While carrots are not subject to an industry promotions levy, R&D levy funds can be judiciously used in testing and piloting marketing initiatives aimed at expanding retail sales (e.g. trial shipments with VC partners). 	M
Supply coordination	<ul style="list-style-type: none"> • Coordination of carrot supply from other Australian states when Western Australian carrots may be of lesser eating quality or when required export volumes cannot be met. Information to assist with supply coordination would be sourced from the ‘well informed grower’ group. 	M
Seafreight and supply chain R&D	<ul style="list-style-type: none"> • No problems are reported with the seafreight supply chain to Malaysia Loss of cold chain integrity after arrival is an issue that affects the quality of Australian carrots, particularly through dehydration at retail. Monitoring and measuring cold chains practices in Malaysia is recommended, along with identifying remedial practices. 	M
Specialist On ground representation (Development Officer)	<ul style="list-style-type: none"> • To provide on the ground, independent, market intelligence, representation, reverse trade mission coordination etc. 	M

5.9 Foundations of a Sweet Corn Strategy - Malaysia

Market analysis reveals that Australian investment in the Malaysian sweet corn market is not warranted.

6. Three Year Market Development Investment Plan

6.1 Investment Plan – Carrots UAE and Malaysia

The strategies that make up the Carrot Three Year Market Development Investment Plan are drawn from investment options described in Chapters 4 and 5. Only investment options that were initially ranked as ‘High’ have been incorporated into the Plan.

Table 6.1 details thirteen strategies across three plan objectives. The Plan shows total three year investment cost as well as benefits to levy payers who will access carrot export opportunities in the UAE and Malaysia, other carrot export markets, the domestic carrot market and the broader vegetable industry.

Table 6.1 Carrot Investment Plan – R&D Investment Costs and Benefits by Market Segment

Carrot Investment Plan Strategy	R&D Investment Over 3 Years (\$)	Benefits to Levy Payers from growth in UAE and Malaysia Carrot Market - share of \$19.25 M Total (%)	Benefits to Levy Payers in Other Carrot Export Markets	Benefits to Levy Payers in the Domestic Market	Benefits to Levy Payers in the Broader Vegetable Industry
1. Increase the supply of carrots for export					
1.1 Address the sustainability of production <ul style="list-style-type: none"> Rotations, bio-fumigants and break crops Water and fertiliser 	\$1,500,000	30%	√√√	√√√	√√
1.2 Investigate the potential of new production areas <ul style="list-style-type: none"> Desk and field analysis (no planting trials) North of Perth for non-summer production Scott River for summer production East coast warm season production 	\$120,000	20%	√√√	√√	Not applicable
1.3 Audit production practices and varieties <ul style="list-style-type: none"> Practices that maximise marketable yield Symposium to identify best carrot genetics 	\$250,000	10%	√√√	√√√	√
1.4 Training in growing carrots for export markets <ul style="list-style-type: none"> Scheduling, harvest, post-harvest management 	\$175,000	5%	√√√	√√	√
2. Product enhancement and provision of services					
2.1 ‘Sweeter carrots’: brix testing to differentiate Australian carrots - system design, rollout to packers and growers	\$30,000	2.5%	√√√	√	Not applicable
2.2 Identify dual purpose fresh / processing carrot types <ul style="list-style-type: none"> Build on genetics symposium outputs Fresh carrots domestic/export plus fresh juice on export Varietal evaluation – high carotene fresh market carrots with high marketable yields 	\$100,000	2.5%	√√√	√√	Not applicable
2.3 a) Juice supply chain; composite carrots and bulk containers - assess market, larger composite class carrots and the cost effectiveness of bulk packaging alternatives b) Bulk packaging: in-country prepacking (Malaysia) - cost effective bulk packaging/liner combinations	\$100,000	2.5%	√√	Not applicable	Not applicable
2.4 Technologies to extend juice shelf life <ul style="list-style-type: none"> Review, trial and assess technologies to extend shelf life beyond current 3 days 	\$150,000	2.5%	√√	Not applicable	Not applicable
2.5 Crop reports and forecasts <ul style="list-style-type: none"> Implement 2006 feasibility study for carrots Regularly source regional production data and forecasts Communication packages to Aust industry 	\$270,000	7.5%	√√√	√√√	√√ (model for other sectors)

3. Develop the market in the UAE and Malaysia					
3.1 Retail and food service training <ul style="list-style-type: none"> Improved management at retail + food service Build partnerships / preference for Aust product 	\$300,000	7.5%	√√√	√	√√
3.2 Handbook of Australian vegetables – production, seasonality, regions, types, handling, uses, nutrition value, etc. <ul style="list-style-type: none"> Carrots share of a cross vegetable initiative Develop across a range of media e.g. hardcopy, video, online, etc. 	\$60,000	2.5%	√√√	√	√√√
3.3 Trade communications <ul style="list-style-type: none"> Use data from crop reports and forecasts to provide updates to the trade in the UAE and Malaysian market place 	\$60,000	5%	√√√	Not applicable	√√ (model for other sectors)
3.4 Address the loss of cold chain integrity in UAE <ul style="list-style-type: none"> In market assessment of current practices Design and communicate remedial practices 	\$60,000	2.5%	√	Not applicable	Not applicable
4. Project management and review					
4.1 Manage the three year investment plan including project design, preparation of project briefs, review tender responses, management and review – 10% of total	\$317,500	N/a	N/a	N/a	N/a
Total	\$3,492,500	100%			

6.2 Return on Investment Analysis – Carrots UAE and Malaysia

The return on investment analysis (ROI) uses benefit cost analysis techniques as described by the Council of Rural Research and Development Corporation Guidelines (CRRDC updated 2012). The ROI analysis is consistent with HAL Strategic Planning Guidelines (November 2009) and in particular the requirement for an Analytical Business Case to inform Strategic Investment Plan decision making.

ROI analysis is informed by twin investment plan goals for carrots, one each for the UAE and Malaysia:

Goal UAE: *‘Double the volume of Australian carrot exports to UAE to 35,000 tonnes within 5 years through expanding sales into importers/distributors, modern retail, food service and the fresh juice market’*

Goal Malaysia: *‘Double the volume of Australian carrot exports to Malaysia to 20,000 tonnes within 5 years through expanding sales into modern retail, targeted traditional markets, food service and the fresh juice market’*

The goals are realistic, achievable and consistent with the growth forecast for both markets.

Delivery of both goals will:

- Increase total carrot production and export sales by 27,500 tonnes (17,500 tonnes in the UAE and 10,000 tonnes in Malaysia)
- Achieve additional export sales of A\$19.25 million, based on A\$7 per 10kg carton (personal communication Western Australian carrot growers)

The total grower benefit of delivering the UAE and Malaysia Carrot Investment Plan is \$19.25 million per annum when fully realised. To complete the ROI analysis it was necessary to apportion total grower benefit (\$19.25 million per annum) alongside each of the proposed strategies – column 3 of Table 6.1. Allocation of benefit by strategy was completed in a team workshop that included production, supply chain, marketing and R&D planning and evaluation expertise.

Table 6.2 reports ROI analysis results for a range of investment criteria. The Present Value of Benefits (PVB) and Present Value of Costs (PVC) were used to estimate investment criteria of Net Present Value (NPV) and the Benefit Cost Ratio (BCR) at a discount rate of 5% real. Internal Rate of Return (IRR) was also estimated. The

PVB and PVC are the sums of the discounted streams of benefits and costs. The discounting is used to allow for the time value of money and the discount rate of 5% real is that specified in the CRRDC Guidelines.

ROI has been calculated on returns from the UAE and Malaysia – significant benefits to other markets (export and domestic) and the vegetable industry more generally are identified in Table 6.1 but are not quantified.

Table 6.2 Carrot Investment Plan ROI Analysis

Carrot Investment Plan Strategy	Present Value of Benefits (\$ M)	Present Value of Costs (\$ M)	Net Present Value (\$ M)	Internal Rate of Return (%)	Benefit Cost Ratio (BCR)
1. Increase the supply of carrots for export					
1.1 Address the sustainability of production <ul style="list-style-type: none"> Rotations, bio-fumigants and break crops Water and fertiliser 	10.5	1.3	9.2	76	7.8
1.2 Investigate the potential of new production areas <ul style="list-style-type: none"> Desk and field analysis (no planting trials) North of Perth for non-summer production Scott River for summer production East coast complementarity 	0.7	0.1	0.6	36	5.7
1.2 Audit production practices and varieties <ul style="list-style-type: none"> Practices that maximise marketable yield Symposium to identify best carrot genetics 	1.1	0.2	0.9	60	4.7
1.4 Training in growing carrots for export markets <ul style="list-style-type: none"> Scheduling, harvest and post-harvest management 	0.6	0.2	0.4	67	4.2
2. Product enhancement and provision of services					
2.1 'Sweeter carrots': Brix testing to differentiate Australian carrots <ul style="list-style-type: none"> System design, rollout to packers and growers 	0.3	0.1	0.2	133	9.5
2.2 Identify dual purpose fresh / processing carrot types <ul style="list-style-type: none"> Build on genetics symposium outputs Fresh carrots domestic/export plus fresh juice on export Varietal evaluation – high carotene fresh market carrots with high marketable yields 	0.4	0.1	0.3	74	4.1
2.3 a) Juice supply chain; composite carrots and bulk containers - assess market, larger composite class carrots and the cost effectiveness of bulk packaging alternatives b) Bulk packaging: in-country prepacking (Malaysia) - cost effective bulk packaging/liner combinations	0.3	0.1	0.2	56	3.4
2.4 Technologies to extend juice shelf life <ul style="list-style-type: none"> Review, trial and assess technologies to extend shelf life beyond current 3 days 	0.5	0.1	0.4	62	3.7
2.5 Crop reports and forecasts <ul style="list-style-type: none"> Implement 2006 feasibility study for carrots Regularly source regional production data and forecasts Communication packages to Australian industry 	0.8	0.2	0.6	58	3.2
3. Develop the market in the UAE and Malaysia					
3.1 Retail and food service training <ul style="list-style-type: none"> Improved management at retail + food service Build partnerships / preference for Aust product 	0.9	0.3	0.6	56	3.3
3.2 Handbook of Australian vegetables – production, seasonality, regions, types, handling, uses, nutrition value, etc. <ul style="list-style-type: none"> Carrots share of a cross vegetable initiative Develop across a range of media 	0.2	0.1	0.1	56	3.1
3.3 Trade communications <ul style="list-style-type: none"> Use data from crop reports/forecasts to updates to the trade in the UAE and Malaysian market place 	0.3	0.1	0.2	99	6.2
3.4 Address the loss of cold chain integrity in UAE <ul style="list-style-type: none"> In market assessment of current practices Design and communicate remedial practices 	0.5	0.1	0.4	129	8.8

4. Project management and review					
4.1 Manage the three year investment plan including project design, preparation of project briefs, review tender responses, management and review – 10% of total	N/a	N/a	N/a	N/a	N/a
Total	17.0	3.2	13.8	65	5.4

Typically BCR results for agricultural and horticultural R&D investments range from between 3 and 11. The strategies within the proposed Carrot Investment Plan are consistent with this outcome. An overall BCR of 5.4 can be interpreted as a return to growers of \$5.40 for every \$1.00 invested.

6.3 Investment Timeline – Carrots UAE and Malaysia

To assist with the scheduling of investment proposed under the plan an investment timeline has been prepared. The timeline shows total investment spread relatively evenly over the three years with the greatest share of outlays occurring in Year 2 – projects require some ‘ramping up’ in Year 1 before tapering sets in in Year 3.

Table 6.3 Carrot Investment Plan Implementation – Annual Investment Allocations and Projected Timelines

Carrot Investment Plan Strategy	2014/15 Year 1	2015/16 Year 2	2016/17 Year 3	Total R&D Investment Over 3 Years (\$)
1. Increase the supply of carrots for export				
1.1 Address the sustainability of production	\$300,000	\$600,000	\$600,000	\$1,500,000
1.2 Investigate the potential of new production areas	\$120,000			\$120,000
1.3 Audit production practices and varieties	\$100,000	\$150,000		\$250,000
1.4 Training in growing carrots for export markets		\$50,000	\$125,000	\$175,000
2. Product enhancement and provision of services				
2.1 Brix testing to differentiate Australian carrots	\$10,000	\$20,000		\$30,000
2.2 Identify dual purpose fresh / processing carrot types		\$30,000	\$70,000	\$100,000
2.3 a. Juice supply chain; composite carrots and bulk containers b. Bulk packaging for in-country prepacking (Malaysia)		\$40,000	\$60,000	\$100,000
2.4 Technologies to extend juice shelf life	\$50,000	\$100,000		\$150,000
2.5 Crop reports and forecasts	\$90,000	\$90,000	\$90,000	\$270,000
3. Develop the market in the UAE and Malaysia				
3.1 Retail and food service training	\$140,000	\$80,000	\$80,000	\$300,000
3.2 Handbook of Australian vegetables	\$20,000	\$20,000	\$20,000	\$60,000
3.3 Trade communications	\$20,000	\$20,000	\$20,000	\$60,000
3.4 Address the loss of cold chain integrity in UAE	\$60,000			\$60,000
4. Project management and review				
4.1 Project implementation including on ground checks	\$89,000	\$124,000	\$104,500	\$317,500
Total	\$999,000	\$1,324,000	\$1,169,500	\$3,492,500

6.4 Investment Plan - Sweet Corn UAE

The strategies that make up the Sweet Corn Three Year Market Development Investment Plan are drawn from investment options described in Chapter 4. Only investment options that were initially ranked as ‘High’ have been incorporated into the Plan.

The ROI analysis for sweet corn is driven by a single investment plan goal for the UAE; investment in Malaysia is not warranted:

Goal UAE: *‘Take value added market share from South Africa and within 3 years grow it to 200 tonnes per annum for Australian suppliers’*

Delivery of this goal will:

- Generate retail values in excess of A\$2 million per annum
- A retail value of A\$2 million per annum equates to a grower pack-house value of around A\$1 million per annum.

Table 6.4 shows investment required to deliver this benefit, allocation of benefit to sweet corn producers supplying the UAE market and ‘spillover’ benefits to other parts of the vegetable industry.

Table 6.5 shows ROI analysis results and Table 6.5 provides a summary of planned investment timeline.

Table 6.4 Sweet Corn Investment Plan and ROI Analysis

Sweet Corn Investment Plan Strategy	R&D Investment Over 3 Years (\$)	Benefits to Levy Payers from growth in UAE Sweet Corn Market – share of \$1 M Total (%)	Benefits to Levy Payers in Other Sweet Corn Export Markets	Benefits to Levy Payers in the Domestic Market	Benefits to Levy Payers in the Broader Vegetable Industry
1. Increase the supply of sweet corn for export					
1.1 Training in growing sweet corn for export markets <ul style="list-style-type: none"> • Scheduling, harvest and post-harvest management 	\$80,000	20%	√√√	√√	√
2. Product enhancement, provision of services					
2.1 Product presentation research <ul style="list-style-type: none"> • Design more appealing labels and presentation styles to differentiate Australian from South African sweet corn in the UAE 	\$50,000	20%	√√√	√	Not applicable
2.2 Atmosphere packaging to extend shelf life <ul style="list-style-type: none"> • Permeable membranes, modified atmosphere, etc. 	\$100,000	30%	√√√	√√	√√
2.3 Trial shipments to UAE <ul style="list-style-type: none"> • Work with commercial partners to design and deliver mixed consignment shipments 	\$40,000	30%	√√√	Not applicable	Not applicable
3. Project management and review					
3.1 Project implementation including on ground checks <ul style="list-style-type: none"> • Manage the three year investment plan including project design, preparation of project briefs, and briefs, management and review – 10% of total 	\$27,000	Not applicable	Not applicable	Not applicable	Not applicable
Total	\$297,000	100%			

6.5 Return on Investment Analysis – Sweet Corn UAE

Table 6.5 Sweet Corn Investment Plan and ROI Analysis

Sweet Corn Investment Plan Strategy	Present Value of Benefits (\$)	Present Value of Costs (\$)	Net Present Value (\$)	Internal Rate of Return (%)	Benefit Cost Ratio (BCR)
1.Increase the supply of sweet corn for export					
1.2 Training in growing sweet corn for export markets <ul style="list-style-type: none"> Scheduling, harvest and post-harvest management 	\$335,327	\$72,174	\$263,153	53%	4.6
2.Product enhancement and provision of services					
2.1 Product presentation research <ul style="list-style-type: none"> Design more appealing labels and presentation styles to differentiate Australian from South African sweet corn in the UAE 	\$235,618	\$46,259	\$189,359	85%	5.1
2.2 Atmosphere packaging to extend shelf life <ul style="list-style-type: none"> Permeable membranes, modified atmosphere, etc. 	\$502,990	\$88,543	\$414,447	71%	5.7
2.3 Trial shipments to UAE <ul style="list-style-type: none"> Work with commercial partners to design and deliver mixed consignment shipments 	\$189,111	\$38,095	\$151,016	47%	5.0
3. Project management and review					
3.1 Project implementation including on ground checks <ul style="list-style-type: none"> Manage the three year investment plan including project design, preparation of project briefs, and briefs, management and review – 10% of total 	N/a	N/a	N/a	N/a	N/a
Total	\$1,263,046	\$269,578	\$993,468	58%	4.7

The ROI analysis shows an overall return for the Sweet Corn Investment Plan of 4.7 i.e. for every dollar invested forecast returns are \$4.70.

6.5 Investment Timeline – Sweet Corn UAE

R&D investment in the Sweet Corn Investment Plan for the UAE peaks in Year 2 at \$121,000.

Table 6.6 Sweet Corn Investment Plan and ROI Analysis

Sweet Corn Investment Plan Strategy	2014/15 Year 1	2015/16 Year 2	2016/17 Year 3	R&D Investment Over 3 Years (\$)
1.Increase the supply of sweet corn for export				
1.1 Training in growing sweet corn for export markets	\$20,000	\$30,000	\$30,000	\$80,000
2.Product enhancement and provision of services				
2.1 Product presentation research	\$20,000	\$30,000		\$50,000
2.2 Atmosphere packaging to extend shelf life		\$50,000	\$50,000	\$100,000
2.3 Trial shipments to UAE	\$40,000			\$40,000
3. Project management and review				
3.1 Project implementation including on ground checks	\$8,000	\$11,000	\$8,000	27,000
Total	\$88,000	\$121,000	\$88,000	\$297,000

6 Study Conclusions

The study has reviewed the market for fresh Australian carrots and sweet corn in the UAE and Malaysia and identified opportunities to grow the trade. Australian growers and commercial partners in the UAE and Malaysia have been identified and an investment strategy developed.

The investment strategy for carrots shows that for a three year investment of \$3.5 million an overall ROI of 5.4 is forecast. In addition to returns from the UAE and Malaysia there are ‘spinoff’ benefits for carrot growers who supply other export markets, the domestic market as well as benefits for the wider vegetable industry.

The investment strategy for sweet corn in the UAE shows a similar rate of return to that forecast for carrots from a much smaller investment. From an investment of \$300,000 returns to growers are forecast at 4.7 i.e. for every dollar invested \$4.70 is returned to growers. There are also ‘spinoff’ benefits for sweet corn growers supplying other export markets, the domestic market as well as benefits for the wider vegetable industry.

The project should now proceed to Stage 3 – investment plan implementation – following appropriate internal review processes.

7 References

- ABC TV News (May 2014) <http://www.abc.net.au/news/2014-05-15/chemical-free-spuds/5460802>
- AgEconPlus (2013) Vegetable Industry: Domestic and Export Market Access and Trade Viability Issues – A Strategy to Address, Project Number VG12042 prepared for HAL
- AgEconPlus (30 March 2014) Malaysia and the United Arab Emirates Market Analysis and Strategy: Carrots and Sweet Corn, Interim Report (Milestone 102) Project Number VG13047 prepared for HAL
- Asia Fruit Congress 2013 Statistics Handbook
- Asia Fruit Magazine (May 2012) Retailing in Malaysia – 3 pager
- Austrade (2014) Connecting Australian Companies with Business Opportunities in the GCC
- AUSVEG and HAL (2013) Vegetable Industry Advisory Committee Annual Report 2012/13
- AUSVEG and HAL (2013) Vegetable Export Discussion Paper
- Baker, J (2006) Carrot Supply Information Intelligence ‘The Well Informed Grower for Carrots’, Scoping Study prepared for the Australian Fresh Fruit Company (AFFCO). HAL Project VG06116
- Blaesing, D (2014) ‘Identification of Potential Alternatives to Metham Sodium’ Project VG 13045 is currently being conducted for HAL by RM Consulting Group
- Davison E & A McKay (2000) Proceedings of Carrot Conference Australia Perth ,Western Australia 80pp
- Euro Fruit Congress (November 2013) Fresh Focus Middle East Magazine
- Euromonitor International (28 February 2014) Market Analysis and Strategy Baby Leaves and Long Beans, Project Number 1.5 DT MVCD prepared for HAL
- Food Mag 2013 [http://www.foodmag.com.au/news/sumich-gets-approval-for-\\$3-5m-tassie-investment](http://www.foodmag.com.au/news/sumich-gets-approval-for-$3-5m-tassie-investment)
- Mulcahy, R (2013) Reverse Trade Mission 2013, Project Number VG12101 prepared for HAL
- Mulcahy, R (2013) Asia Fruit Logistica 2013, Project Number VG12100 prepared for HAL

Nielsen Middle East a Fruitful Opportunity, EuroFruit Congress Middle East 2013, Dubai

NSW DPI Sweet Corn Production Guide

<http://www.dpi.nsw.gov.au/agriculture/horticulture/vegetables/commodity/sweet-corn>

Oregon State University - Fresh Market Sweet Corn <http://nwrec.hort.oregonstate.edu/corn-fr.html>

Oregon State University - Processing Sweet Corn <http://nwrec.hort.oregonstate.edu/corn-pr.html>

Ord, R (January 2007) Carrot Supply Information Intelligence Scoping Project, Establish support to form a Carrot Supply Information Service and develop goals and operating protocols for the Service VG06116

QDPI Sweet Corn Production Guide <http://www.daff.qld.gov.au/plants/fruit-and-vegetables/vegetables/sweet-corn>

Sumich http://www.sumich.com/fresh_produce.html and <http://www.youtube.com/watch?v=QpYHw38hTSM>

Total Market Solutions (2014) Carrot and Sweet Corn Market Research – Malaysia a report prepared for AgEconPlus to support HAL project VG13047

US Agricultural Marketing Resource Centre – Sweet Corn Profile

http://www.agmrc.org/commodities_products/vegetables/sweet-corn/

Vegetable Industry Advisory Committee (2013) Annual Report 2012-13

HAL (2011) Vegetable Industry Strategic Plan 2012-2017

http://cms2live.horticulture.com.au/admin/assets/library/strategic_plans/pdfs/PDF_File_56.pdf

HAL (2013) Australian Horticulture Statistics Handbook 2012

Vilmorin seeds <http://www.vilmorin.ru/upload/brochures/Carrot%20Guide%20%28English%29.pdf>

Weekly Times (17 July 2013) Australia's biggest carrot grower is investing in Tasmania - and access to new irrigation water has been the lure.

http://www.weeklytimesnow.com.au/article/2013/07/17/576899_horticulture.html

Appendix 1: Grower Contact Email 28 January 2014

The following email was sent to carrot and sweet corn growers 28 January 2014:

Dear (first name)

I am writing to you as a leading carrot (sweet corn) grower/packer to gauge your interest in developing a better understanding of the carrot (sweet corn) markets of the United Arab Emirates and Malaysia, working with an industry team to develop these markets and potentially supplying them with the right package of product and service over the next three to five years.

The project is levy funded and includes myself (an agricultural economist), Mike Titley (agronomy) and John Baker (marketing) and builds on initial positive indicators of the potential of the United Arab Emirates and Malaysia for fresh Australian carrots and sweet corn.

To date the project has included:

- *Statistical analysis and desk based research*
- *Field work with importers, wholesalers and retailers in Dubai and Kuala Lumpur*
- *Drafting of market research reports for the United Arab Emirates and Malaysia*

Next steps include:

- *In country commercial discussions - Dubai and Kuala Lumpur*
- *Working with Australian grower partners to develop a Three Year Market Development Investment Plan*

If you have any comments to add to the project, they would be most welcome. e.g. any regulatory (either in Australia or in the markets) or commercial impediments (access to new varieties etc.).

If you are interested in receiving project materials as they become available and participating in either of the next steps please reply to this email.

Yours sincerely

Michael Clarke

HAL Project VG13047

Mobile: 043 8844024