Understanding to revitalise fresh pear industry development

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Project Number: AP13011

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Understanding to Revitalise Fresh Pear Industry Development

Final Report

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Department of Environment and Primary Industries

AP13011

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The purpose of this final report is to provide a brief summary of the activities and outputs of the project AP13011.

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Contents

Media Summary

Pear growing in the Goulburn Valley region of Victoria has been a successful industry for many years. Presently, the pear industry in the Goulburn Valley is at a point where decisions need to be made regarding production and market viability while confronting a reduced canning sector, diminishing returns and high production costs. The industry is changing rapidly with new varieties, markets and production systems being developed to enhance the fresh pear industry in the future.

The *'Understanding to revitalise fresh pear industry development'* 12 month project provides the fresh pear industry with a consolidated understanding of the pear industry by identifying grower segments within the fresh pear industry based upon the barriers and constraints to fresh pear production. The project uses this knowledge to identify specific communications to the different grower segments. This allows industry and government to provide research, development and extension projects and programs which are better focused, integrated and engaged with the target industry audiences.

The project's industry segmentation study provides information on fresh pear growers' requirements and preferences. The report '*Constraints and potential of growing fresh pears in the Goulburn Valley'* identified eight grower segments for fresh pear production mainly based upon the key elements in the farm system such as the capability to store the fruit that is currently grown on farm, whether there is a direct relationship with a supermarket or wholesale market or if there is a reliance on a cool store operator to take fruit.

The constraints that categorise the eight identified segments could be summarised into the following themes; cost of block redevelopment, low return on investment of pear crops, availability of cool storage, reductions in the canning sector and consumer demand for pears with each segment affected differently.

Results of this study provide the basis of an interim pear industry engagement and communication plan by targeting specific communications focused upon identified constraint themes; the eight different grower segments address the related identified constraints. Each segment will have its own key messages and level of engagement reflecting the relative benefits to the industry of working with these segments. Efforts to assist segments one, three and five with industry development support are the most likely to create a profitable fresh pear industry and as such the project outcomes will be considered into the broader strategic plan by industry and government.

Technical Summary

The pear industry in the Goulburn Valley is at a point where decisions need to be made regarding production and market viability while confronting a reduced canning sector, diminishing returns and high production costs. The industry is changing rapidly with new varieties, markets and production systems being developed to enhance the fresh pear industry in the future.

The *'Understanding to revitalise fresh pear industry development'* 12 month project provided the fresh pear industry with an understanding of grower's aspirations, motivations and needs for fresh pear production to enable industry to better tailor research, development and extension projects to lift productivity, profitability and marketability.

The project conducted an industry segmentation study to provide information on fresh pear growers' requirements and preferences. The study was based upon the Kaine framework and others who have adapted consumer behaviour theory to explain the purchase of farm inputs generally, and agricultural innovations in particular, by primary producers. They proposed that 'involvement' plays a central role in explaining the importance of a decision. The outcomes of such decisions will depend

on producers' perceptions of net benefits which are influenced by a number of key elements (the biophysical, social, technological and business elements) in the farm system. Consequently, producers can be grouped into segments on the basis of similarities and differences in these benefits.

There were twenty five growers selected using purposive sampling technique. A semi-structured interview schedule was developed prior to interviewing the selected pear growers. The interview was designed to obtain information on how and why pear varieties were chosen to grow, users' attitudes and priorities of pear growing and their views on the risks associated with pear production. Interview responses were recorded manually by two interviewers, summarised, then analysed using case and cross-case analysis. By analysing the constraints and barriers of fresh pear production, characteristics within the key elements of the farm system emerged to segment the interviewees into eight segments. Segment 1 growers were capable of storing all of their own fruit in cool storage and had direct contracts with the big supermarkets. They had large areas under fruit production and were keen to plant new varieties of fresh pears. In contrast Segment 8 growers didn't have enough cool storage to store their own fruit and relied on multiple cool store operators to take their fruit. They have very small properties and are not able to afford more debt to reinvest into a new development. They also can't wait for the pears to produce a commercial quantity.

The constraints that categorised the eight identified segments could be summarised into the following themes; cost of block redevelopment, low return on investment of pear crops, availability of cool storage, reductions in the canning sector and consumer demand for pears with each segment affected differently.

Results of this study presented in the report '*Constraints and potential of growing fresh pears in the Goulburn Valley'* provided the basis of an interim pear industry engagement and communication plan. The results were analysed and reviewed using industry consultation to identify specific targeted communications of research, development and extension to the eight different market segments. Each segment has its own key messages and level of engagement reflecting the relative benefits to the industry of working with these segments. For example, segment one's key needs include understanding management of new and club varieties and market development. In contrast, segment 8 key needs included options for land use and alternative crops and business planning.

Efforts to assist segments one, three and five with industry development support are the most likely to create a profitable fresh pear industry and as such the project outcomes will be considered into the broader strategic plan considered by industry and government. Two key recommendations from this project would be to further investigate the segments to get a clearer idea of the size of each segment and specific preferences and facilitate communication within and across the industry segments by establishing channels for information sharing and identifying and addressing barriers to communication flow.

Introduction

The pear industry is at a cross road to maintain production and market viability with reduced processing sector, diminishing returns and high production costs. The change, transition and rejuvenation required by the pear industry are beyond the scope of industry or Apple and Pear Australia Ltd (APAL) acting alone. Until recently the pear industry has been primarily focussed on supplying the processing sector, which has led to under investment and an uncoordinated approach in building industry knowledge and expertise in fresh pears.

The *'Understanding to revitalise fresh pear industry development'* 12 month project addresses a key objective (Objective 3) of the Apple and Pear Industry Strategic Plan (New Horizons 2015) which is 'Ensure industry has the resources and capability to achieve primary objectives. This project aimed to understand how best to achieve industry development goals of matching service delivery to changing grower and industry requirements and improve the quality and flows of information for decision-making across the supply chain.

Qualitative social research to better understand the Australian pear industry, predominantly within the Goulburn Valley, through segmentation is based on understanding the farm context (the biophysical, social, technological and business elements of the farm system) and thereby the benefits and costs of adopting a new practice. This project aimed to better understand who is in the market to grow fresh pears and why, what types of varieties they might be interested in growing and what types of markets they would like to supply. This then provided valuable information to allow industry to understand grower segments' requirements and preferences to better tailor research, development and extension projects to lift industry productivity, profitability and marketability.

This approach built on the recommendations and findings of the *'Adoption of Intensive Pear Production'* project (AP04009) completed in 2007 which utilised market research based on the Kaine Framework (Kaine 2008) and was essential for the project to understand the end users and develop a realistic adoption strategy. The project demonstrated that adoption targets should be based on a clearer understanding of the market for adoption not an arbitrary percentage of a whole industry.

The Victorian state government together with industry is committed to rejuvenating the horticulture industry. The *Goulburn Valley Fruit Growing Industry Roadmap* (RMCG 2013) outlines a number of actions that require implementation to ensure the vision of fruit growing businesses and the industry continues to drive the social and economic prosperity and growth of the Goulburn Valley region with government, industry and business commitment and implementation of staged program areas. This is coupled with state government strategies that guide the direction and activities of the agriculture sector including *Growing Food and Fibre Initiative* to double production by 2030 and *Food to Asia Action Plan* to boost exports to Asian markets and address industry challenges in doing so. Also importantly, APAL industry plan, *New Horizons 2015* and export strategic plan.

Materials & Methods

The materials and methods utilised in this project are as follows:

<u>Qualitative market research of fresh pear industry</u>

There are several existing theories and frameworks from social psychology and consumer behaviour, which can be applied to understand the context and 'involvement' in decision making in regard to growing fresh pears. Kaine and others (2010b) have adapted consumer behaviour theory to explain the purchase of farm inputs generally, and agricultural innovations in particular, by primary producers. Given that decisions about which pear variety, or other crop type is grown are highly involving for producers, then they will follow a complex decision making process (Kaine et al. 2010a).

This means that, in relation to their farm business, producers will devote considerable time and effort to making decisions about what to grow. Kaine and others (2010b) have shown that, in regard to high involvement decisions, the outcomes of such decisions will depend on producers' perceptions of net benefits. Kaine et al. (2010b) have also shown that, typically, these benefits are influenced by a small number of key elements in the farm system. These key elements are termed the 'farm context' for the decision (Kaine et al. 2010b) and may include natural resources such as climate and soils, agricultural technology and management practices, and production strategies for managing risks (Kaine et al. 2010b).

The study utilised the data collection methods proposed by Kaine (2008) to identify those elements in the farm system that influence the benefits to be had, or not, from pear variety selection, and to identify the relationship between these key elements and producers' decisions and behaviour in relation to growing fresh pear varieties. Convergent interviewing (Dick 1998) was used to identify the key issues influencing fresh pear production within the selected population which is a technique that is unstructured in its content.

The proportion of Australian pears grown in the region was the reason why the research was carried out in the Goulburn Valley. A list of approximately 110 pear growers within the area were provided to the project team, from which 25 growers were selected using purposive sampling technique. Care was taken to ensure interviews were conducted with growers from a range of contexts such as grower only, grower and packer, or growers who are packers as well as exporters as well as small, medium and large business types. Purposive sampling is a technique where characteristics of the interview population are targeted for the purpose of the study. It is useful to reach a targeted sample quickly and where proportional outcomes are not important to the study (Walter 2006).

A semi-structured interview schedule was developed prior to interviewing the selected sample of pear growers. The interview was designed to obtain information on how and why pear varieties were chosen to grow, attitudes and priorities of growing pears, and their views on the risks associated with pear production. Interviewees were questioned on the following:

1. The nature and characteristics of their farming business

2. The pear varieties currently grown

3. Who the end user is for their produce

4. How they see the future

5. What sort of advice is sought and from who.

During the interviews, the laddering technique (Grunert and Grunert 1995) was used to systematically explore the reasoning underlying the decisions and actions of the interviewee. Interview responses were recorded manually by two interviewers, summarised, then analysed using case and cross-case analysis (Patton 1990). By analysing the constraints and barriers of fresh pear production, characteristics within the key elements of the farm system emerged to segment the interviewees into eight segments.

Interviews with relevant stakeholders were carried out to obtain a greater understanding of the fresh pear context within the Goulburn Valley and help to confirm the findings. Interviews were carried out with stakeholders from APAL, HAL, Fruit Growers Victoria and an industry consultant.

Interim pear industry engagement and communication plan

The interim pear industry engagement and communication plan is based upon analysis of the segmentation study and consultation with industry to discuss analysis and research, development and extension and communication needs through the project control board and on an individual basis, a total of 15 industry representatives were consulted and included growers, service providers and Apple and Pear Australia Ltd.

Results

Two key project outputs were produced over the twelve months (Refer to Appendix).

The segmentation study - The constraints and barriers to fresh pear production in the Goulburn Valley outlined by Longley and Seymour (2014) were depended upon elements within the farm systems. This included the capability to store the fruit that is currently grown on farm, whether there is a direct relationship with a supermarket or wholesale market or if there is a reliance on a cool store operator to take fruit. These factors were utilised to determine the industry segmentation as outlined in Figure 1.

The summarised characteristics of each of the eight segments are in Table 1 and are under themes of production, market, profitability and the key reasons for not including fresh pears in future business. Production takes into account the management of trees, the choice of variety and crop type, skills and knowledge and inputs. Market incorporates elements within the supply chain, market channel for fruit and marketing decisions. Profitability provides the drivers for decision making to achieve a profit.

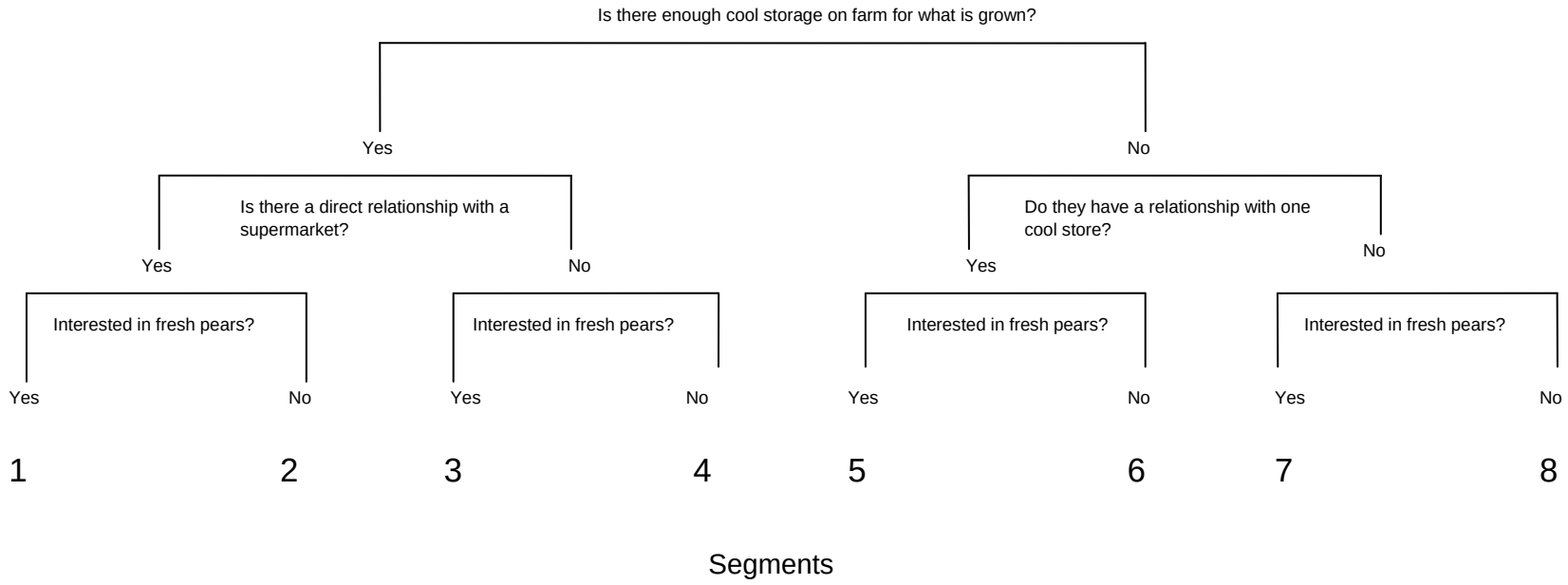

Figure 1 Farm Context Tree of fresh pear growers in the Goulburn Valley

Longley and Seymour (2014)

Table 1 Summarised characteristics of Goulburn Valley pear growers in segments

	Production	Market	Profitability	Segments not interested in fresh pears
Segment 1	• Canning varieties removed • Have highly developed skills and knowledge to produce quality fresh fruit • Ability to access to new varieties • May have already planted a new pear variety	• Strong relationships with supermarket and growers • Sets standards on fruit sourced from other growers • Some exporting where there is a profit	• Strive for a high pack out percentage • Ability to find buyers for fruit sourced from other growers that doesn't meet supermarket specifications	**Segment 2** • Aging grower • Can't wait for pears to produce a commercial volume • Investing in other fruit types
Segment 3	• Have been transitioning to fresh varieties over a number of years • Highly developed skills and knowledge to produce quality fresh fruit	• Developed relationships within the domestic market over the years • Sell to the best price	• Supermarkets dictate price hence sell to best price • Have some cool storage to keep fruit until the best price is found	**Segment 4** • Can't wait for pears to produce a commercial volume • Investing in other fruit types due to thoughts on consumer demand • Can't afford cost of development • Unable to go into more debt
Segment 5	• Have small land areas • Williams pears are a large proportion of their pears • Have skills and capabilities in fresh pear production	• Don't grow the volume that supermarkets want • Rely on a cool store to take the fruit	• Managed William trees to produce fruit intended for the domestic market	**Segment 6** • Returns from pears are too low • Investing in other fruit types
Segment 7	• Have small land areas • Williams pears are a large proportion of their pears • Hopeful SPCA will survive • Some leaving fruit on trees	• Rely on multiple cool stores to take the fruit • Selling Williams pears lowers the profitability of Packham pears	• Managed William trees to produce fruit intended for the domestic market	**Segment 8** • Have small land areas • Unable to go into more debt • Can't wait for pears to produce a commercial volume • Want to exit horticulture

Adapted from Longley and Seymour (2014)

Interim Pear Industry Engagement and Communication Plan – The plan analysed the understanding of the pear industry and segmentation to identify specific communications to the different market segments to allow industry and government to target communication and engagement of research, development and extension projects and programs to be better focused, integrated and engaged with target industry audience.

The engagement and communication plan targets segment one, three and five who all want to be in the fresh pear industry into the future with specific research, development and extension information relevant to their businesses. For example, segment one's key needs include: understanding management of new and club varieties; industry benchmarks for costs of production and performance; and market development and access. The plan will facilitate industry readjustment and exiting of fresh pear production to segment two, four and six through targeted policy and support services. It is noted that segment four would consider fresh pears into the future if the constraint of the long term investment horizon for pears was addressed. The plan will also minimise the impacts of the readjusting canning industry on fresh pear production through targeted policy and support services to segments seven and eight. For example, segment eight's key needs include options for land use and alternative crops, business planning and exit industry strategies. There are common needs that impact more than one segment and provide a platform for research, development and extension with whole of industry application including economic modelling of current and future production systems to determine cost of production and reduction of production time. Each segment will have its own key messages and level of engagement reflecting the relative benefits to the industry of working with these segments (Table 2).

Table 2: Summary of communications and engagement interim plan to revitalise fresh pear industry

- To revitalise the fresh pear industry, target research, development and extension efforts towards Segments 1, 3 and 5 (Focus 1&2).
- To facilitate industry readjustment and exit fresh pear production (and in some cases horticultural), target policy and support services towards segments 2, 4 and 6 (Focus 3).
- To minimise impacts of readjusting canning industry on fresh pear production, target policy and support services towards segments 7 and 8 (Focus 4).

Audience	Communication message		Engagement[1]	Importance[2]	Engagement methods
Segment 1	Focus 1	revitalise the fresh pear industry, ***To strive for high pack out percentage and market diversification in domestic and export markets.***	Collaborate	Critical	Web tools Reference groups Facilitated forums for deliberation and decision making
Segment 3	Focus 2	revitalise the fresh pear industry ***To refine knowledge and skills to produce a high quality fruit within specifications***	Involve	Significant	Workshops Interviews Deliberative polling Web tools Forums
Segment 5		revitalise the fresh pear industry ***Redevelopment of the large portion of Williams pears and use skills and capabilities in fresh pear production.***	Consult	Moderate	Public comment Focus groups Surveys Public meetings Web tools
Segment 4 and 2	Focus 3	industry readjustment and exit fresh pear production ***Opportunity to showcase fresh pear industry new production systems for investment as alternative to investing in other crop types and/or encourage industry readjustment to exit industry.***	Inform	Low	Fact sheets Newsletters Websites Targeted letters
Segment 6,7 and 8	Focus 4	minimise impacts of readjusting canning industry ***Industry readjustment and/or continue or focus upon canning industry with continued SPCA quotas.***	Inform	Moderate	Fact sheets Newsletters Websites Policies Targeted letters
Government		Revitalise the fresh pear industry, ***Commitment to work together to develop and prioritise program of works to achieve industry vision.*** Refer to RMCG page ii (2013)	Empower	Critical	Implement policies and programs Dialogue and interaction Joint planning Provision of data Shared projects Capability building
Industry bodies			Empower	Critical	

[1] **Levels of Engagement: Inform** – communicate information to the relevant stakeholders, **Consult**– seek the opinions of relevant stakeholders, **Involve** – work with stakeholder throughout the project to involve them in decision making and action, **Empower** – stakeholders share decision making power and take responsibility for achieving actions with other stakeholders

[2] **Importance**: **Low** – no major concern and can be managed by routine procedures, **Moderate** – can influence implementation and needs some actions to be monitored, **Significant** – specific attention and action required within ongoing monitoring, **Critical** – implementation cannot proceed without agreed level of engagement, detailed planning and monitoring required

Adapted DSE (2005)

Discussion

This project has progressed the revitalisation of the fresh pear industry by identifying grower segments within the fresh pear industry based upon the barriers and constraints to fresh pear production and provides a consolidated understanding of the pear industry. Further the project has analysed this understanding to identify specific communications to the different grower segments to allow industry and government to target communication and engagement of research, development and extension projects and programs to be better focused, integrated and engaged with target industry audience.

Progress against the initial project outcomes listed below has been achieved to a reasonable extent over a 12 month timeframe, particularly outcomes of 1 and 2.

1. Consolidated understanding of the pear industry to allow targeting of programs and fast tracking of RD&E projects to achieve the industry's strategic objectives.
2. Ability to target Government and APAL industry development programs to be better focused, integrated and engaged with the different pear industry segments.
3. Movement towards achievement of New Horizon 2015 industry development goals of matching service delivery to changing grower and industry requirements, improve the quality and flows of information for decision-making across the supply chain.
4. Movement towards achievement of the New Horizons 2015 objective of Ensuring industry has the resources and capability to achieve primary objectives of expanding trade such that 10% of marketable product is exported and domestic demand increased by 2015'.

The state government and industry has outlined a number of actions and focus areas including the *Goulburn Valley Fruit Growing Industry Roadmap* and *Food to Asia Action Plan* and APAL's industry and export strategic plans and review of Horticulture Australia Ltd during the progression of this project. It would be presumptuous of this project to outline a level of detail of action without recognising that government and APAL need to complete broader strategic and program plans. Importantly, this project will provide input into strategic plans and future associated projects and programs for the fresh pear industry considered by industry and the government and the impact of this project in terms of outcome 3 and 4 will be realised.

Technology Transfer

Presentations of the project outputs have been presented to the project control board comprise of grower representatives, APAL , HAL, researchers and government representatives to engage, inform and direct the project. and through industry discussions as outlined in the materials and methods section. The segmentation study report has been discussed and disseminated to state government policy, horticulture and regional services and with APAL and the Goulburn Valley Industry and Employment Taskforce as part of the Goulburn Valley Fruit Growing Industry Roadmap.

The future of the project outputs will play a role in the associated projects and programs of the state government in particularly the service provision as outlined in the discussion.

Recommendations

This 12 month focused project upon the fresh pear industry based upon the two key project outputs of an interim pear industry engagement and communication plan and the preceding segmentation study, recommends that the following be taken into consideration when developing a broader strategic plan and detailed communication and engagement work plan by industry and government.

1. Further investigate the segments such as number of growers to get a clearer idea of the size of each segment and specific preferences.
2. Coordinate industry leaders to refine industry strategic plan which focuses on developing action plans and establishing realistic industry targets to address industry priorities.
3. Conduct biannual research reviews and monitor growers as a whole and per segment on needs and satisfaction with industry services.
4. Cost of production data studies and evidence to be competitive in export and domestic markets against competitors. Yield and pack out are the two most critical factors affecting average cost of production and investment is required to get the right level of yield and pack out (segment 1).
5. Facilitate communication within industry across the industry segments by establishing channels for information sharing and identifying and addressing barriers to communication flow.
6. Identify industry champions in segment 1, 3 and 5 for industry and government to drive industry progression.
7. Strategic focus on developing export markets, particularly industry collaboration.
8. Learn from other industries on themes of revitalising the industry, export development, rationalisation and restructuring.

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Appendix

Two key project outputs were produced over the twelve months.

1. Segmentation study: Constraints and potential of growing fresh pear in the Goulburn Valley (separate file)

2. Interim Pear Industry Engagement and Communication Plan

Project AP 13011

Interim pear industry engagement and communication plan (as per segmentation analysis). – For Discussion

Summary:
This interim Pear Industry Engagement and Communication Plan will progress the revitalisation of the fresh pear industry by targeting specific communications to the eight different grower segments as described in the pear market segmentation report.

The segmentation report identified constraints and barriers to fresh pear production such as the capability to store the fruit that is currently grown on farm, whether there is a direct relationship with a supermarket or wholesale market or if there is a reliance on a cool store operator to take fruit. Further, the constraints that categorised the segments could be summarised into the following themes, cost of block redevelopment, low return on investment of pear crops , availability of cool storage, reductions in the canning sector and consumer demand for pears with each segment affected differently.

The interim engagement and communication plan targets segment one, three and five who all want to be in the fresh pear industry into the future with specific research, development and extension information relevant to their businesses. For example, segment one's key needs include: understanding management of new and club varieties; industry benchmarks for costs of production and performance; and market development and access. The plan will facilitate industry readjustment and exiting of fresh pear production to segment two, four and six through targeted policy and support services. It is noted that segment four would consider fresh pears into the future if the constraint of the long term investment horizon for pears was addressed. The plan will also minimise the impacts of the readjusting canning industry on fresh pear production through targeted policy and support services to segments seven and eight. For example, segment eight's key needs include options for land use and alternative crops, business planning and exit industry strategies. There are common needs that impact more than one segment and provide a platform for research, development and extension with whole of industry application including economic modelling of current and future production systems to determine cost of production and reduction of production time.
Each segment will have its own key messages and level of engagement reflecting the relative benefits to the industry of working with these segments. Efforts to assist segments one, three and five with industry development support are the most likely to create a profitable fresh pear industry.

Purpose:

The *'Understanding to revitalise fresh pear industry development'* project is aimed at providing industry with an understanding of growers' aspirations and motivations for fresh pear production. Ultimately this will enable industry to better tailor research, development and extension projects to lift productivity, profitability and marketability.

DEPI conducted an industry segmentation market research study to provide information on fresh pear growers' requirements and preferences. Results of this study provides the basis of a pear industry engagement and communication plan which can be further developed into an industry driven 'blueprint' for fresh pear research, development and extension to develop a realistic adoption strategy to revitalise industry.

This interim Pear Industry Engagement and Communication Plan will progress the revitalisation of the fresh pear industry by targeting specific communications to the different market segments as described in the report '*Constraints and potential of growing fresh pears in the Goulburn Valley'*.

Background:

The pear industry in the Goulburn Valley is at a point where decisions are needed to be made regarding production and market viability while confronting a reduced canning sector, diminishing returns and high production costs. The industry is changing rapidly with new varieties, markets and production systems being developed to enhance the fresh pear industry in the future.

The state government together with industry is committed to rejuvenating the horticulture industry. The *Goulburn Valley Fruit Growing Industry Roadmap* outlines a number of actions that require implementation to ensure the vision of fruit growing businesses and the industry continues to drive the social and economic prosperity and growth of the Goulburn Valley region with government, industry and business commitment and implementation of staged program areas (RMCG,2013). This is coupled with state government strategies that guide the direction and activities of the agriculture sector including *Growing Food and Fibre Initiative* to double production by 2030 and *Food to Asia Action Plan* to boost exports to Asian markets and address industry challenges in doing so. Also importantly, APAL industry plan, *New Horizons 2015* and export strategic plan.

This interim Pear Industry Engagement and Communication Plan, is based upon the segmentation study, and as such is an interim plan as it will provide input into the broader strategic plan considered by industry and government.

<u>Grower segmentation</u>

The constraints and barriers to fresh pear production in the Goulburn Valley outlined by Longley and Seymour (2014) were depended upon elements within the farm systems. This included the capability to store the fruit that is currently grown on farm, whether there is a direct relationship with a supermarket or wholesale market or if there is a reliance on a cool store operator to take fruit. These factors were utilised to determine the industry segmentation as outlined in Figure 1.

The summarised characteristics of each of the eight segments are in Table 1 and are under themes of production, market, profitability and the key reasons for not including fresh pears in future business. Production takes into account the management of trees, the choice of variety and crop type, skills and knowledge and inputs. Market incorporates elements within the supply chain, market channel for fruit and marketing decisions. Profitability provides the drivers for decision making to achieve a profit.

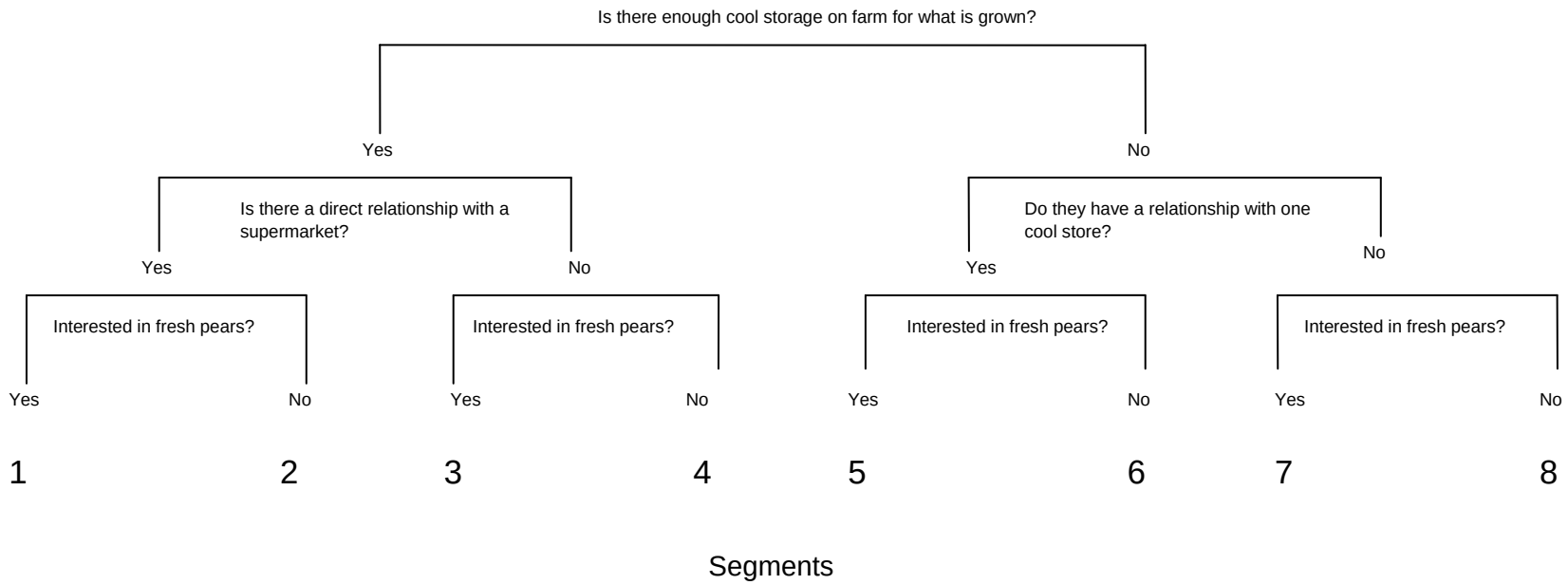

Figure 1 Farm Context Tree of fresh pear growers in the Goulburn Valley

Longley and Seymour (2014)

Table 1 Summarised characteristics of Goulburn Valley pear growers in segments

	Production	Market	Profitability	Segments not interested in fresh pears
Segment 1	• Canning varieties removed • Have highly developed skills and knowledge to produce quality fresh fruit • Ability to access to new varieties • May have already planted a new pear variety	• Strong relationships with supermarket and growers • Sets standards on fruit sourced from other growers • Some exporting where there is a profit	• Strive for a high pack out percentage • Ability to find buyers for fruit sourced from other growers that doesn't meet supermarket specifications	**Segment 2** • Aging grower • Can't wait for pears to produce a commercial volume • Investing in other fruit types
Segment 3	• Have been transitioning to fresh varieties over a number of years • Highly developed skills and knowledge to produce quality fresh fruit	• Developed relationships within the domestic market over the years • Sell to the best price	• Supermarkets dictate price hence sell to best price • Have some cool storage to keep fruit until the best price is found	**Segment 4** • Can't wait for pears to produce a commercial volume • Investing in other fruit types due to thoughts on consumer demand • Can't afford cost of development • Unable to go into more debt
Segment 5	• Have small land areas • Williams pears are a large proportion of their pears • Have skills and capabilities in fresh pear production	• Don't grow the volume that supermarkets want • Rely on a cool store to take the fruit	• Managed William trees to produce fruit intended for the domestic market	**Segment 6** • Returns from pears are too low • Investing in other fruit types
Segment 7	• Have small land areas • Williams pears are a large proportion of their pears • Hopeful SPCA will survive • Some leaving fruit on trees	• Rely on multiple cool stores to take the fruit • Selling Williams pears lowers the profitability of Packham pears	• Managed William trees to produce fruit intended for the domestic market	**Segment 8** • Have small land areas • Unable to go into more debt • Can't wait for pears to produce a commercial volume • Want to exit horticulture

Adapted from Longley and Seymour (2014)

Discussion:

The constraints to pear production

Longley and Seymour (2014) summarised the constraints to producing fresh pears in the Goulburn Valley under the following themes:

- Block redevelopment
- Return on investment
- Cool storage
- Reductions in the canning sector
- Consumer demand

Each segment is affected differently within each theme.

The Interim Pear Industry Engagement and Communication Plan

Targeting segments

The interim engagement and communication plan for the fresh pear industry has the following focus areas to target segments:

- To revitalise the fresh pear industry, target research, development and extension efforts towards Segments 1, 3 and 5. (Focus 1&2)
- To facilitate industry readjustment and exit fresh pear production (and in some cases horticultural), target policy and support services towards segments 2 and 4. (Focus 3)
- To minimise impacts of readjusting canning industry on fresh pear production, target policy and support services towards segments 6, 7 and 8. (Focus 4)

Focus 1:

Segment 1

Segment 1 is the key industry player for the fresh pear industry with key relationships up and downstream with supermarket and grower suppliers and service providers. They are the marketers for other segments as they perform the function of store, pack and market fruit and often are supermarket category managers and hence communicate on behalf of the industry. Segment 1 could be termed an "innovation catalyst connector " for the industry on market, production and profitability. Ryan. A. (2014) states that innovation catalysts are individuals that increase the rate of innovation within a company, organisation or industry as they turn ideas into actions and have significant reach and influence in a company or industry.

Segment 1 has the knowledge and skills across production and market, profitability area of fresh pear production and the infrastructure, knowledge and skills to produce quality fresh fruit. They can access new varieties (including proprietary) with large areas under fruit production and are proactively seeking new "clubs" to join.

Segment 1: Targeting of research, development and extension:	
Aim: To strive for high pack out percentage and market diversification in domestic and export markets.	
Constraint addressed	**Suggested R, D E**
Block redevelopment	• New and club varieties –pre and post-harvest management to achieve fruit quality to market requirements
Return for investment	• Mapping cost of production and performance of current and future production systems to provide industry benchmarks and to allow marketing schedules and price points. • Innovation investment and partnering with service providers through development demonstrations and training
Cool Storage	• Communication of fruit specification to downstream segments 3 and 5, possibility of pack house accreditation system for grower suppliers
Consumer demand	• Facilitation of market access to China and maintenance of existing markets • Market development to leverage new varieties and increase like hood of commercial success. • Collaboration support for market supply and understand market priorities, particularly export markets.
General	• Collaboration between Segment 1 players as a leadership group to represent industry at industry and government forums and drive industry progression.

Focus 2:

Segment 3

Segment 3 is the volume fresh pear suppliers for Segment 1 and often has a relationship with 1-2 players in segment 1. Segment 3 have a history of business diversification to spread risk and have the capacity to store fruit in cool store infrastructure to give market flexibility to wait for best price but do not necessary have the relationships and contracts with supermarkets and often sell to other market channels like wholesalers and specialty fruit shops.

Segment 3 has the knowledge and skills to produce quality fresh fruit but need reinforcing of how (and why) to achieve pack out percentage and specification.

Segment 3: Targeting of research, development and extension:	
Aim: To refine knowledge and skills to produce a high quality fruit within specifications	
Constraint addressed	**Suggested R, D E**
Block redevelopment	• Pre and post-harvest management to improve fruit quality of current production systems. • Understand new and club varieties as current and/or future entrant into new varieties when volume required. Require a new variety guideline and benchmarking
Return for investment	• *Production systems and management – tree densities, canopy systems, irrigation, to be efficient and lower costs.*
Cool Storage	• *Consolidation of cool stores*
Consumer demand	• *Understand of (and why) fruit specifications and understanding of market and biosecurity requirements to enable segment to supply volume quality fruit to market preferences.*

Segment 5

Segment 5 are interested in growing fresh pears in the future but need to redevelop to do so as variety mix is not well matched to the fresh market. They do not have cool room capacity to store their own fruit so rely upon segments further up the chain such as segment 1 and 3 to take fruit so have formed relationships with these segments. There is capability from a debt perspective to invest in redevelopment to fresh pears.

Segment 5: Targeting of research, development and extension:	
Aim: Redevelopment of the large portion of Williams pears and use skills and capabilities in fresh pear production.	
Constraint addressed	**Suggested R, D E**
Block redevelopment	• *Cost of redevelopment with purpose so economic modelling of current and future production systems to determine cost of production.*
Return for investment	• *Production systems and management – tree densities, canopy systems, irrigation, to be efficient and lower costs.* • *Dwarf rootstocks and other technologies to reduce the time between planting and commercial production* • *Business planning and development, alternative business and investment models*
Consumer demand	• *Understand of (and why) fruit specifications and understanding of market and biosecurity requirements to enable segment to supply volume quality fruit to market preferences.*

Focus 3:

Segment 4

Similar characteristics to Segment 3 but do not have the capacity to invest in redevelopment of fresh pears from a debt perspective and with a long term investment horizon for a return on investment and so are interested in other crop types. Would consider pears if redevelopment constraints of long length of production and current low return on investment were addressed and were comparable to other crop types such as stone fruit.

Segment 4 (&2[a]) : Targeting of research, development and extension:	
Aim: opportunity to showcase fresh pear industry new production systems for investment as alternative to investing in other crop types and/or encourage industry readjustment to exit industry.	
Constraint addressed	**Suggested R, D E**
Block redevelopment	• *Cost of redevelopment with purpose so economic modelling of current and future production systems to determine cost of production.*
Return for investment	• *Dwarf rootstocks and other technologies to reduce the time between planting and commercial production* • *Options for land use and alternative crops for diversification* • Business planning and development, alternative business and investment models

[a] *Segment 2 was similar to segment 1 with the exception of age of grower so for that reason would have similar RD&E requirements as Segment 4.*

Focus 4:

Segment 6,7 and 8

These segments shared similar constraints in the resources and capability to progress the fresh pear industry. The major constraints included the cash flow, market uncertainty, cost of redevelopment of predominantly canning pear varieties with a long term investment horizon for the return on investment, no firm relationship with other upstream segments and property size.

Segment 6,7 and 8: Targeting of research, development and extension:	
Aim: Industry readjustment and/or continue or focus upon canning industry with continued SPCA quotas.	
Constraint addressed	**Suggested R, D E**
Block redevelopment	• *Alternative land use diversification options*
Return on investment	• *Options for land use and alternative crops for diversification* • Business planning and development,
Reductions in the canning sector	• Consolidation and rationalisation of orchards and infrastructure • Exit strategies to leave pear and/or horticulture industry • Orchard management

The following common themes to more than one segment provide a platform for research, development and extension with whole of industry application.

Common themes (more than one segment) : Targeting of research, development and extension:		
Constraint addressed	**Segments**	**Suggested R,D & E**
Block redevelopment	5 and 4	• Cost of redevelopment with purpose so economic modelling of current and future production systems to determine cost of production.
Return on investment	3, 5 and 4	• Production systems and management – tree densities, canopy systems, irrigation, to be efficient and lower costs. • Dwarf rootstocks and other technologies to reduce the time between planting and commercial production
	4 ,6,7 and 8	• Options for land use and alternative crops for diversification
	5 and 4	• Business planning and development, alternative business and investment models
Cool storage	3 and 5	• Consolidation of cool stores
Consumer demand	3 and 5	• Understand of (and why) fruit specifications and understanding of market and biosecurity requirements to enable segment to supply volume quality fruit to market preferences.

Table 2: Summary of communications and engagement interim plan to revitalise fresh pear industry

- To revitalise the fresh pear industry, target research, development and extension efforts towards Segments 1, 3 and 5 (Focus 1&2).
- To facilitate industry readjustment and exit fresh pear production (and in some cases horticultural), target policy and support services towards segments 2, 4 and 6 (Focus 3).
- To minimise impacts of readjusting canning industry on fresh pear production, target policy and support services towards segments 7 and 8 (Focus 4).

Audience	Communication message		Engagement[1]	Importance[2]	Engagement methods
Segment 1	Focus 1	revitalise the fresh pear industry, ***To strive for high pack out percentage and market diversification in domestic and export markets.***	Collaborate	Critical	Web tools Reference groups Facilitated forums for deliberation and decision making
Segment 3	Focus 2	revitalise the fresh pear industry ***To refine knowledge and skills to produce a high quality fruit within specifications***	Involve	Significant	Workshops Interviews Deliberative polling Web tools Forums
Segment 5		revitalise the fresh pear industry ***Redevelopment of the large portion of Williams pears and use skills and capabilities in fresh pear production.***	Consult	Moderate	Public comment Focus groups Surveys Public meetings Web tools
Segment 4 and 2	Focus 3	industry readjustment and exit fresh pear production ***Opportunity to showcase fresh pear industry new production systems for investment as alternative to investing in other crop types and/or encourage industry readjustment to exit industry.***	Inform	Low	Fact sheets Newsletters Websites Targeted letters
Segment 6,7 and 8	Focus 4	minimise impacts of readjusting canning industry ***Industry readjustment and/or continue or focus upon canning industry with continued SPCA quotas.***	Inform	Moderate	Fact sheets Newsletters Websites Policies Targeted letters
Government		Revitalise the fresh pear industry, ***Commitment to work together to develop and prioritise program of works to achieve industry vision.*** Refer to RMCG page ii (2013)	Empower	Critical	Implement policies and programs Dialogue and interaction Joint planning Provision of data Shared projects Capability building
Industry bodies			Empower	Critical	

[1] **Levels of Engagement: Inform** – communicate information to the relevant stakeholders, **Consult**– seek the opinions of relevant stakeholders, **Involve** – work with stakeholder throughout the project to involve them in decision making and action. **Empower** – stakeholders share decision making power and take responsibility for achieving actions with other stakeholders

[2] **Importance**: **Low** – no major concern and can be managed by routine procedures, **Moderate** – can influence implementation and needs some actions to be monitored, **Significant** – specific attention and action required within ongoing monitoring, **Critical** – implementation cannot proceed without agreed level of engagement, detailed planning and monitoring required

Adapted DSE (2005)

Recommendations:

This interim Pear Industry Engagement and Communication Plan on the basis of the preceding discussion of the segmentation study, recommends that the following be taken into consideration when developing a broader strategic plan and detailed communication and engagement work plan by industry and government.

1. Further investigate the segments such as number of growers to get a clearer idea of the size of each segment and specific preferences.
2. Coordinate industry leaders to refine industry strategic plan which focuses on developing action plans and establishing realistic industry targets to address industry priorities.
3. Conduct biannual research reviews and monitor growers as a whole and per segment on needs and satisfaction with industry services.
4. Cost of production data studies and evidence to be competitive in export and domestic markets against competitors. Yield and pack out are the two most critical factors affecting average cost of production and investment is required to get the right level of yield and pack out (segment 1).
5. Facilitate communication within industry across the industry segments by establishing channels for information sharing and identifying and addressing barriers to communication flow.
6. Identify industry champions in segment 1,3 and 5 for industry and government to drive industry progression.
7. Strategic focus on developing export markets, particularly industry collaboration and understanding to supply and reduce risks.
8. Learn from other industries on themes of revitalising the industry, export development, rationalisation and restructuring.

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Constraints and potential of growing fresh pears in the Goulburn Valley

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Contents

Executive Summary

Productive pear growing in the Goulburn Valley region has been a successful industry for many years as it provides the ideal soils and climate needed. Approximately 80% of Australia's pears are grown in the Goulburn Valley, a significant contribution to the Australian domestic and canning markets (DEPI 2013). Understanding the needs of growers and the potential for the uptake of new developments can inform the allocation of research or development of resources to support the industry.

This research aimed to: 1) better understand who is in the market to grow fresh pears and why, 2) what types of varieties they might be interested in growing; and 3) what types of markets they may supply. The findings of the research provide valuable information for industry to improve understanding of differences in grower segment requirements and preferences. This will enable industry to better tailor research, development and extension projects and lift industry productivity, profitability and marketability.

Kaine and others (2010b) have adapted consumer behaviour theory to explain the purchase of farm inputs generally, and agricultural innovations in particular, by primary producers. They proposed that 'involvement' plays a central role in explaining the importance of a decision. The outcomes of such decisions will depend on producers perceptions of net benefits which are influenced by a number of key elements in the farm system. In principle, differences across farms in the key elements that influence the benefits of what is grown give rise to differences in the benefits producers can expect. Consequently, producers can be grouped into segments on the basis of similarities and differences in these benefits.

There were 25 growers selected using purposive sampling technique. A semi-structured interview schedule was developed prior to interviewing the selected pear growers. The interview was designed to obtain information on how and why pear varieties were chosen to grow, users' attitudes and priorities of pear growing and their views on the risks associated with pear production. Interview responses were recorded manually by two interviewers, summarised, then analysed using case and cross-case analysis. By analysing the constraints and barriers of fresh pear production, characteristics within the key elements of the farm system emerged to segment the interviewees into eight segments.

Segment 1 growers were capable of storing all of their own fruit in cool storage and had direct contracts with the big supermarkets. They had large areas under fruit production and were keen to plant new varieties of fresh pears. Segment 2 growers also had enough cool storage to store all of their own fruit and also had direct contracts with the big supermarkets. However, the time it takes to produce a new block of pears and age is a barrier to fresh pear production in the future for this segment. Segment 3 growers also had enough cool storage to store all of their own fruit but they did not have a direct contract with the supermarkets, instead they sold to the best price. These growers were keen to develop more fresh pears in the future. Segment 4 growers again had enough cool storage to store their own fruit, had no direct contracts with the supermarkets and were not interested in growing fresh pears in the future because of the cost to develop a new block. Segment 5 growers didn't have enough cool storage to store their own fruit so they relied on one cool store operator to take their fruit. They were keen to grow fresh pears in the future. Segment 6 growers didn't have enough cool storage to store their own fruit and also relied on one cool store operator to take their fruit. They won't be planting more pears in the future because of the cost to develop and the low returns on pears. Segment 7 growers didn't have any cool storage and relied on multiple cool store operators to take their fruit. This segment was keen to grow pears in the future because there was opportunity to develop a block due to bare land on the property. Segment 8 growers also didn't have enough cool storage to store their own fruit and relied on multiple cool store operators to take their fruit. They have very small properties and are not able to afford more debt to reinvest into a new development. They also can't wait for the pears to produce a commercial quantity.

The constraints to producing fresh pear varieties for growers in the Goulburn Valley includes, the time it takes to produce pears, the return on investment, ability to store own fruit in cool storage or having a reliable operator to take the fruit, the proportion of canning pears put into the domestic market affecting the price of other fresh varieties, and finally the uncertainty of what the consumer likes. The potential for fresh pear production in the Goulburn Valley may depend on growers relationships with operators of cool stores, as well as regulating the production of new varieties to create a return for all in the supply chain, the ability of the grower to re-develop, and finally a shift in culture of growers from canning to fresh.

For the pear industry in the Goulburn Valley, we propose that the following issues are considered when developing a plan to ensure the industry has the resources and capabilities to achieve objectives;

1. Long production time of pears
2. Finding opportunities to plant pears
3. Grower relationships with cool store operators
4. Understanding fruit specification standards and how to achieve them
5. Accessing new pear varieties
6. Export potential

Introduction

Victoria's Goulburn Valley has long been seen as a highly productive area where many industries such as dairy and fruit growing is supported and has become entrenched in its history. Approximately 80% of Australian pears are grown in the Goulburn Valley (DEPI 2013). The soils and climate are conducive to productive pear growing, along with other pome and stone fruit, hence the location of both the Ardmona cannery and the Shepparton Preserving Company (SPC), now merged and known as SPCA.

The pear industry however is changing, through shifts in the focus of markets for its product, and the type of product it produces. In line with the changing industry a range of market and production developments in the pear industry have been developed, including new varieties, market access processes and production system developments. Understanding the needs of growers and the potential for the uptake of these developments can inform the allocation of research or development resources, along with the development of services to support the industry. This report presents the result of a qualitative study (based on interviews with 25 growers) which sets out to provide industry with an understanding of the contextual factors likely to influence pear grower's decision making, specifically the adoption of fresh pear varieties in the Goulburn Valley. An existing research framework, the Kaine Framework (2008), was applied to segment (and describe) the potential fresh pear industry. The Framework is based on the premise that people employ different decision making processes depending on the importance of the decision and the likely extent that the outcome of the decision best meets their particular requirements. The benefit of adopting a technology or practice is influenced by key elements in the farm system and is termed the 'farm context' (the biophysical, social, technological and business elements). It is likely that differences across farms in regard to these key elements will lead to differences in the benefits growers can expect. Consequently, growers can be grouped into segments on the basis of similarities and differences in these benefits.

This research aimed to: 1) better understand who is in the market to grow fresh pears and why, 2) what types of varieties they might be interested in growing; and 3) what types of markets they may supply. The findings of the research provide valuable information for industry to improve understanding of differences in grower segment requirements and preferences. This will enable industry to better tailor research, development and extension projects and lift industry productivity, profitability and marketability.

The research results will inform development of RD&E strategies for each segment to be developed by DEPI in close collaboration with APAL as part of the broader project 'Understanding to revitalise fresh pear industry development'. The outcomes of this plan aim to identify an approach to achieve industry development goals of matching service delivery to changing grower and industry requirements. Additionally the engagement and communications plan aims to improve the quality and flow of information for decision-making across the supply chain.

We begin this report by providing a brief background of the pear industry in the Goulburn Valley, particularly changes in pear growing activity over the years. We then present a description of the theory used to provide a framework for the research. Segments of pear growers are proposed and described based on structured interviews with 25 growers. Finally, we discuss the results in light of the objectives of the study and conclude with some considerations for industry and government to best meet the future needs of the industry in terms of productivity, profitability and marketability.

Background: the pear industry in the Goulburn Valley

The total gross value of fruit production in Victoria in 2010/11 was $1,431.3 million, including $151.8 million of pear gross value production. The Goulburn Valley region makes a significant contribution to the Victorian fruit production figures. For example, the gross value of fruit production in the Goulburn Valley in 2009/10 was $330.9 million, with the value of pear production out of the region accounting for 94% nationally. It is estimated that 80% of Australia's pears are grown in the Goulburn Valley with a significant portion of Victoria's 595 apple and pear growers (DEPI 2013).

There have been significant shifts in the pear industry in recent years – both in Victoria and in the Goulburn Valley. In 2010/11 there was over 109,000 tonnes of pears grown in Victoria which was 88% of Australia's total pear production. This was down from the 2005/06 figure of 112,747 tonnes and further again from 134,886 tonnes grown in 1995/96 (DEPI 2013). In 1995/96 fruit production (excluding grapes) in Victoria was dominated by pears. This then declined by 19% in 2010/11 as a result of plants not being replaced because of declining market demand for pears and higher prices compared to other crops. While pear production was in decline, apple production increased by 83% from 1995/96 to 2010/11 (DEPI 2013).

In the Goulburn Valley, the number of pear farms in 2001 didn't change significantly in 2006 (approximately 230). However, by 2011 there were less than 200 pear growers in the region. This is a more significant decline compared to other horticultural areas of Victoria and Australia. In terms of area under pear production, there was a slight decrease from 2001 (approximately 5100ha) to 2011 (approximately 4800ha). Even though the number of fruit trees increased by 44% in the Goulburn Valley from 1999 to 2011, the number of pear trees stayed the same. It is also interesting to note that the value of production of pears in the Goulburn Valley rose from 2001 to 2011 (The Asia Pacific Consulting Group, 2013).

There have also been changes in the export markets for Victorian fruit. Victoria exported $194 million worth of fruit in 2011/12; of this 6,816 tonnes of pome fruit worth $9 million was included. 4,626 tonnes of processed fruit worth $18 million was also exported. However, imports exceeded exports of processed fruit as well as fresh and dried fruit in 2011/12 (DEPI 2013). DAFF (2013) acknowledge the main contributor to Australia's imports between 2010/11 and 2011/12 was processed fruits and vegetables. However, Australia has consistently been a net exporter of fresh and processed fruit, nuts and vegetables since 2004/05 (DAFF 2013). When the AUD was around 0.80 USD, exports and imports were falling, but with the strong AUD, imports are rising (The Asia Pacific Consulting Group, 2013).

A characteristic of the pear (and other horticulture industries) is the wide variation in contexts for pear growing and marketing specific to different businesses. There are varying proportions of fresh pears and canning pears. Growers across the value chain can include packing for their own orchard or other growers, they may or may not have a cool store; and they may be supplying the domestic market or export market, or both. This may be significant from a revenue perspective, if only supplying SPCA with canning varieties and not a domestic or export market considering the reductions announced by SPCA in recent years (The Asia Pacific Consulting Group, 2013).

The pear industry is at a point where decisions need to be made regarding production and market viability while confronting a reduced canning sector, diminishing returns and high production costs. The change, transition and rejuvenation required by the pear industry are beyond the scope of industry or Apple and Pear Australia Limited (APAL) acting alone. Until recently the pear industry has been primarily focussed on supplying the canning sector, which is thought to have led to under investment and an uncoordinated approach in building industry knowledge and expertise in fresh pears.

The pear industry is changing rapidly with new varieties, markets and production systems being developed to enhance the fresh pear industry in the future. Development of the industry must be underpinned by quality science and an understanding of growers' contexts and information needs. The project addresses key objectives of the APAL Strategic Plan including Objective 3 *'Ensure industry has the resources and capability to realise its objectives*' and Objective 2 *'Expand apple and pear export markets to 10% of marketable product by 2015'*.

This study will provide industry with an understanding of grower aspirations and motivation for fresh pear production through understanding the barriers and drivers. Grower segments will allow industry to understand requirements and preferences to tailor research, development and extension projects to achieve industry goals of lifting productivity, profitability and marketability.

Theoretical background for the research

There are several existing theories and frameworks from social psychology and consumer behaviour, which can be applied to understand the context and 'involvement' in decision making in regard to growing fresh pears. Consumer purchase behaviour theory, which originated from social psychology, has shown that people employ different decision processes depending on the importance of the decision (Krugman 1965; Sherif et al. 1965; Petty et al. 1983; Derbaix and Vanden Abeele 1985; Olson and Zanna 1993; Levy 2005). Kaine and others (2010b) have adapted consumer behaviour theory to explain the purchase of farm inputs generally, and agricultural innovations in particular, by primary producers.

Kaine and others (2010b) proposed that 'involvement' plays a central role in explaining the importance of a decision. Mittal and Lee (1989) define involvement as a motivational state that is a result of the perception that the outcome of a decision will satisfy the objectives of the decision-maker. In other words, involvement will be higher the greater the potential for a decision to affect the utilitarian, hedonic and social objectives of a decision-maker. Involvement is intensified by perceived risk (O'Cass 2000; Dholakia 2001).

High involvement purchases are characterised by effortful search for information about, and extensive consideration of, the attributes of the product and how these relate to the source of involvement. Involvement has been shown to influence purchase behaviours such as extensiveness of decision-making, interest in advertising, brand commitment, frequency of product use, shopping enjoyment and social observations of product use and brand use (Mittal and Lee 1989).

In the context of agriculture or horticulture, the involvement of a producer in a farm-related decision will be higher the greater the potential for the consequences of that decision to affect their utilitarian, hedonic and social objectives as the manager of a farm business. Generally speaking, the involvement of producers in decisions about the production of fresh pears is likely to be high. This is because the particular pear variety grown has the potential to substantially affect the achievement of farm productivity and producers' objectives through the ability to gain market access as well as profitability.

Given that decisions about which pear variety, or other crop type is grown are highly involving for producers, then they will follow a complex decision making process (Kaine et al. 2010a). This means that, in relation to their farm business, producers will devote considerable time and effort to making decisions about what to grow. Kaine and others (2010b) have shown that, in regard to high involvement decisions, the outcomes of such decisions will depend on producers' perceptions of net benefits. Kaine et al. (2010b) have also shown that, typically, these benefits are influenced by a small number of key elements in the farm system. These key elements are termed the 'farm context' for the decision (Kaine et al. 2010b) and may include natural resources such as climate and soils, agricultural technology and management practices, and production strategies for managing risks (Kaine et al. 2010b).

In principle, differences across farms in the key elements that influence the benefits of what is grown give rise to differences in the benefits producers can expect. Consequently, producers can be grouped into segments on the basis of similarities and differences in these benefits. Management policies might then be tailored to meet the specific needs of producers in each segment (Kotler 2003).

The arguments presented in this section suggests that producers' decisions and behaviour in relation to fresh pear production can be explained and predicted given knowledge of the key elements in the farm system, that is the 'farm context', that influence the benefits to be had, if any, from fresh pear production.

Methods

Consistent with the background presented in the preceding section we used the data collection methods proposed by Kaine (2008) to identify those elements in the farm system that influence the benefits to be had, or not, from pear variety selection, and to identify the relationship between these key elements and producers' decisions and behaviour in relation to growing fresh pear varieties. Convergent interviewing (Dick 1998) was used to identify the key issues influencing fresh pear production within the selected population which is a technique that is unstructured in its content.

The proportion of Australian pears grown in the region was the reason why the research was carried out in the Goulburn Valley. A list of approximately 110 pear growers within the area were provided to the project team, from which 25 growers were selected using purposive sampling technique. Care was taken to ensure interviews were conducted with growers from a range of contexts such as grower only, grower and packer, or growers who are packers as well as exporters as well as small, medium and large business types. Purposive sampling is a technique where characteristics of the interview population are targeted for the purpose of the study. It is useful to reach a targeted sample quickly and where proportional outcomes are not important to the study (Walter 2006).

A semi-structured interview schedule was developed prior to interviewing the selected sample of pear growers. The interview was designed to obtain information on how and why pear varieties were chosen to grow, attitudes and priorities of growing pears, and their views on the risks associated with pear production. Interviewees were questioned on the following:

1. The nature and characteristics of their farming business
2. The pear varieties currently grown
3. Who the end user is for their produce
4. How they see the future
5. What sort of advice is sought and from who.

During the interviews, the laddering technique (Grunert and Grunert 1995) was used to systematically explore the reasoning underlying the decisions and actions of the interviewee. Interview responses were recorded manually by two interviewers, summarised, then analysed using case and cross-case analysis (Patton 1990). By analysing the constraints and barriers of fresh pear production, characteristics within the key elements of the farm system emerged to segment the interviewees into eight segments.

Interviews with relevant stakeholders were carried out to obtain a greater understanding of the fresh pear context within the Goulburn Valley and help to confirm the findings. Interviews were carried out with stakeholders from APAL, HAL, Fruit Growers Victoria and an industry consultant.

Results

Interview sample

Twenty-five pear growers were interviewed in the Ardmona and Shepparton East areas of the Goulburn Valley. A range of horticulture business owners were interviewed including growers and cool store operators. Properties ranged in size from 30 to 2000 acres. While all of the interviewees grew pears, they also grew at least one other fruit type on their property. The growing methods employed to produce pears were either the traditional vase shape tree or high density plantings on Tatura trellis. Some of the pear trees were reported to be up to 90 years old. The pear varieties grown by the interviewees included Williams, Packham, Josephine, Corella, Buerre Bosc, Red d'Anjou, Clapps, Howell and Yali. Some of these varieties were used on farm as a pollinator for their dominant pear variety.

Growers discussed where their produce would go once harvested. This ranged from storing in their own cool store on farm, or sending to another cool store to store and sell on their behalf. There were also some Williams pears sent to SPCA for canning from some farms.

Some growers had direct contracts with the major supermarkets (Coles or Woolworths) or with wholesale markets, others either had a marketing agent selling on their behalf or would rely on a cool store operator to take their produce.

Classification of pear growers

The interviews revealed that the potential for fresh pear varieties to be grown on farms depended on a number of elements in the farm system. This included their capability to store the fruit that is currently grown on their own property, whether they have a direct relationship with a supermarket or wholesale market, or if they rely on a cool store operator to take their fruit.

These factors were used to construct a farm context tree (Figure 1) for pear growers which classified the interviewees into segments characterizing their potential to grow fresh pear varieties in the future. The tree consists of a series of branches based on the presence (or absence) of key elements in the farm system that influence the potential to grow fresh pear varieties in the future. The branches terminate in segments representing the potential.

This tree is a snapshot in time, and changes to key elements (such as investment in and on farm cool store or changes to pear prices from supermarkets) can change how growers view fresh pear variety potential. Consequently, if changes were to occur in either the infrastructure available on farm or the price of pears in the market, growers could move between segments.

At the first level in the tree, growers are separated based on their ability to store their own fruit for what is currently grown on their farm. Where they can store their own there are some growers with cool stores that hold far more than they grow and therefore source fruit from other growers in the region. Some growers have just enough storage for what they grow at particular times of year.

At the second level in the tree, those that can store their own fruit are divided depending on how they sell their product in the market. Some growers have direct relationships with the supermarkets, whereas others either sell to wholesaler markets and/or use a marketing agent to deal with their pears in the domestic market. For those that don't have storage for what is grown on their property, they are divided depending on relying on one cool store or many to take their fruit.

The third level distinguishes between those that expressed interest in growing a fresh pear variety or not, creating segments of pear growers in the Goulburn Valley.

In the next section each segment is described in detail. The perceptions and behaviour of interviewees are described in terms of the cool storage capability, access to markets and their interest in growing fresh pear varieties in the future.

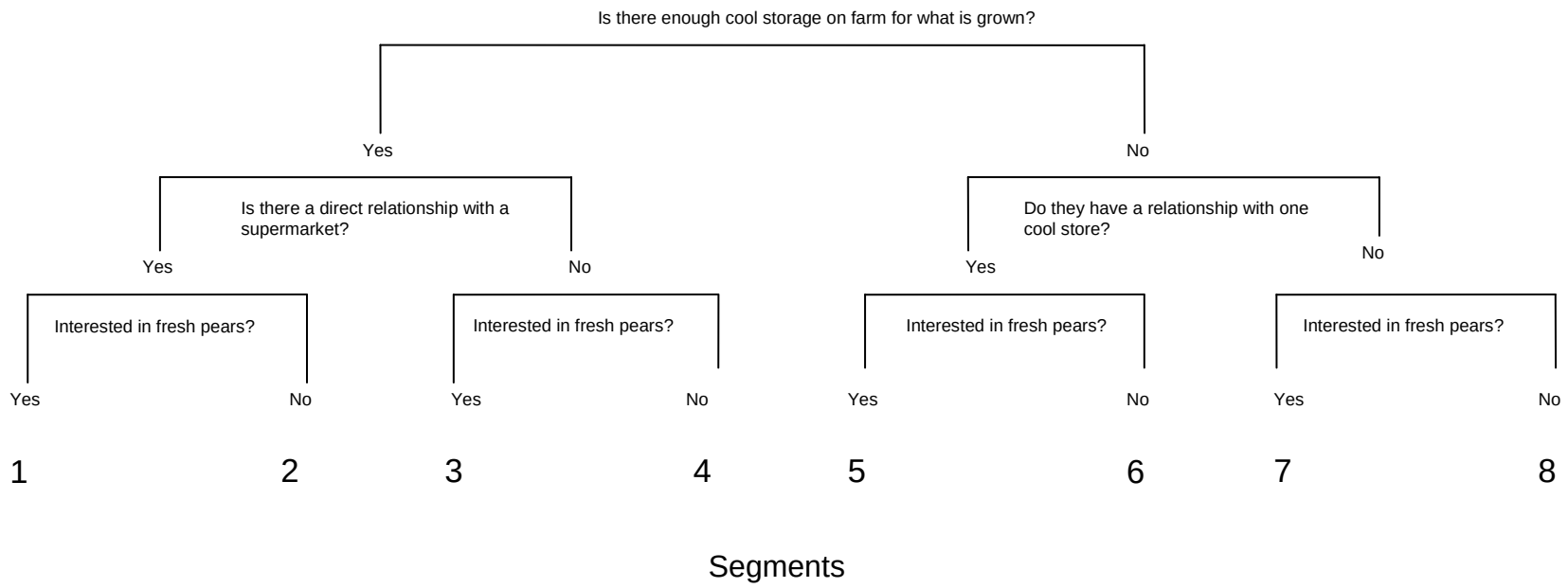

Figure 1 Farm Context Tree of fresh pear growers in the Goulburn Valley

Segments

Segment 1

There were seven growers interviewed out of 25 that fitted within this segment. These growers generally had larger areas under fruit production compared to other segments, ranging from 400 acres to 2000 acres. They also had a range of planting densities due to the differences in age of the trees, reflective of practices to influence yield at the time of planting. The growers in this segment were characterised by having larger cool storage capability, allowing them to not only store their own fresh produce grown on the property, but also able to store other growers' fruit who didn't have that capability. In many cases, these growers said they had built the cool store to have flexibility to sell fruit on the domestic market when prices were good. In a region that was predominantly fruit canning and has now shifted to fresh fruit, they now find themselves being the marketer for other fruit growers, as reflected in these quotes:

> *'It gives others without the infrastructure to get rid of their fruit from this region.'* (Grower #4)

> *'Cool stores were predominantly for storage, but now they have become the pack house and the marketing of fruit.'* (Grower #4)

Those within this segment placed greater emphasis on relationships amongst players within the market supply chain. This included having a direct contract with the big supermarkets (Coles and Woolworths) or IGA and Aldi. They also supplied wholesale markets in Brisbane, Sydney or Melbourne:

> *'It's all about who you know. We all basically grow the same fruit. You're selling your relationship; you're not selling your fruit.'* (Grower #10)

> *'Now it's more focus on retailers like Coles and Woolworths, because they're becoming such big players. They dominate now.'* (Grower #22)

Segment 1 growers had all experienced export of fruit to overseas markets and some were currently exporting fruit where a return could be made. Several growers reflected on the changing export market, describing a highly active market in the 50's and 60's due to the impacts of the Second World War. Australia accessed the North American market in the 70's due to counter seasonal supply but over time technology was able to overcome that. The high Australian dollar has now reduced the amount of fruit exported from Australia because other fruit growing nations are able to provide a far cheaper product. Some growers described the international market and demonstrated their determination to find the right international market to relieve some of the domestic market pressures:

> *'South Africa already took our place in Europe and the Chileans and Peruvians took our place in North America and then South-East Asia…….. We then had to turn our market towards just the Australian market so it's been a pretty tough three decades as a pear grower.'* (Grower #13)

> *'We have to get some of this product off the Australian shelves to be able to sustain the pricing levee that we need on the domestic market. We have to take a bit of a hit in the export to gain on the domestic market.'* (Grower #4)

An important finding was that when SPCA announced reductions in fruit quotas for growers around the Goulburn Valley, the growers in segment 1 had either already pulled canning varieties of fruit out of their farms or did so immediately after the announcement. They replaced the trees with a fruit type that they saw a return in or have left the land bare to do their own research on what they should invest in developing.

> *'I literally started [pulling trees out] the next day because I had an excavator here already.'* (Grower #10)

> *'We've pulled out all of the cannery stuff. We were doing that anyway, regardless of what happened with the cannery because you couldn't make money out of it.'* (Grower #13)

> *'We've slowly pulled out our Williams pears and replanted with apples and stone fruit, which you can generate a better income.'* (Grower #20)

> *'You can't have a business dependent on something that you're not really sure what's going to happen the next year.'* (Grower #22)

The interviews revealed that the relationships that segment 1 growers have within the domestic market chain were valued amongst the other growers. It was apparent that other growers, without those market relationships (and who needed to sell their fresh produce) relied heavily on the segment 1 growers. It seems that the growers in this segment have become a vital link in the transition process from a predominantly canning industry to fresh fruit production.

> *'Some growers read the writing on the wall when SPCA were diminishing quotas and aligned themselves with cool store operators to get on the domestic market.'* (Grower #4)

It was evident that the segment 1 growers had highly developed skills and knowledge along with experience in growing fresh fruit. They spoke in detail about the management of trees to get the best quality of fruit for a high 'pack out' percentage from their own property. Some had invested in netting to protect fruit from hail damage, others had used research outcomes to plan block developments to increase yield and improve the chance of better quality fruit such as high density plantings on Tatura trellis.

Considering that segment 1 growers have strong relationships with the supermarkets and wholesale markets, they source fruit from other growers. This fruit can vary in quality, having implications for the holder of the contract as they are obliged to meet certain standards and remain consistent. Some growers described the relationships between growers and cool store operators as 'strained' if price is reduced as a result of fruit not meeting a particular standard. Some of the growers in this segment would not take fruit from a grower who had only ever supplied a cannery.

> *'The cannery growers seem to do a minimal amount of work, knowing that the fruit will get peeled and go into a can.'* (Grower #13)

An important characteristic of segment 1 was that there is optimism regarding the future of fresh pears in the Goulburn Valley. These growers were keen to establish blocks with a new variety of fresh pear if they hadn't already done so. Many growers in this segment had travelled overseas to learn about markets, new techniques or technology, and see what varieties were being developed. One grower had grafted a new pear variety on to 10 year old Williams's trees to shorten the time to production. All growers in this segment were waiting to access the new variety from Tatura DEPI. Access to some of these new varieties are through clubs which regulates how many trees are in production and therefore regulates the supply and demand of the fruit, ensuring a good return for their investment. Growers are very supportive of this model:

> *'I think it's a real good model the club varieties because production is controlled. The way it's packed and handled is controlled, and the way it's marketed is controlled. If the products good, there is scope for everybody to do well in the supply chain.'* (Grower #22)

Segment 2

The one grower in this segment had a direct contract with Coles or Woolworths and enough cool storage to store his own fruit currently, but was not looking to invest in pears in the future. He had 80 acres of fruit trees that were mostly pears but was investing more in stone fruit. He described two reasons for this shift, firstly he didn't have enough cool storage for more pome fruit production on his property, and secondly he felt that at his age he didn't have the time to wait for production of pears to repay the investment and make money.

The segment 2 grower had a property comprised of 70% pears and 30% stone fruit. He had increased the amount of stone fruit because they are a quick producer, have a different harvest time to pome, and if there was a bad year for Packham's, he wouldn't have anything to back him up for that season.

> *'It's no good me having a big cool store here and using it for two months and shutting it down. As much as I'd like to have 99% Packham's, I can't afford to have that because if I have a bad year on Packham's or they have a frost, I'm out of business.'* (Grower #14)

He had grown pears the traditional vase shape as well as growing on trellis and believed that bigger tonnages could be achieved from trellis trees compared to the vase shape but both methods required skilled pruning. The grower described the vase shape trees as requiring more ongoing management whereas trellis trees would require intense management to get the wood to grow in the right place but then management could be reduced as they aged. The length of time it takes to produce fruit from the current root stock was one of the reasons he won't plant a new pear variety because of the amount of time he would need to invest in management as well as the cost of the development.

> *'I planted some [pears] about seven or eight years ago. They're still not in production. They're beautiful trees. Everything is really nice and good, but they're just not fruiting.'* (Grower #14)

Segment 3

There are three growers in this segment with properties between 160 acres and 400 acres. They did not have a direct relationship with any of the supermarkets, and they sell to the best price. The amount of storage they have gives them this ability to control when they sell the product.

> *'It's just where we can make money; it's an opportunistic business looking for the right price.'* (Grower #5)

> *'We sell to anyone at the right price'.* (Grower #6)

One grower had supplied the supermarkets in the past but it was very stressful due to the supermarket dictating the price and therefore not knowing if he would make good money on his fruit. He decided to not sell to the supermarkets and look for the best price instead. He finds this much better but the downside is waiting for payment from the markets which means finances need to be good to start with:

> *'I wouldn't even consider getting involved with the supermarkets again. They want to be dictators.'* (Grower #17)

Similar to segment 1, growers in this segment voluntarily started moving to fresh varieties a long time before SPCA announced reductions. They didn't want to rely on the canning industry and so started developing relationships within the domestic market supply chain. They have had their SPCA quotas reduced however the impacts they are experiencing are minimal because they can sell fruit to the domestic market. These relationships and their skills and knowledge regarding fresh fruit production are the reason they are keen to grow a fresh pear variety.

> *'We have been moving in that direction [from canning to fresh] over the last ten years'.* (Grower #5)

> *'The ones that haven't got the packing facilities and storage facilities and so forth, they just won't survive.'* (Grower #17)

Segment 4

The three growers in this segment had land areas between 100 acres and 160 acres. They were characterised by unfavourable attitudes to the pear industry and were not willing to plant any pears in the future. They had been impacted by the SPCA reductions and managing on farm debt was also another consideration for them.

One of the reasons described for not investing in pears in the future on their farms was the cost of a new development and the time it would be expected to take to get a return on that investment. Even then, they were not convinced the returns for a product like a pear were ever going to be any good.

> *'If you spend money on it [development], you've got to get the money back off it.' 'Like they say, you plant pears for your heirs.'* (Grower#9)

Two of the growers in this segment were deciding what to replace some of their pears with. One was considering planting more apples and the other grower was looking into stone fruit because of the reduced time from planting to production and potential to access the Asian market. This grower had travelled to Asia to understand their tastes and was more convinced that the Asian market would find stone fruit more appealing than pears:

> *'They [peaches or plums] just get up quicker.' 'We went to a lot of supermarkets in Asia, a pear would be in the back somewhere and it's sort of hidden. They're just not an appealing looking piece of fruit.'* (Grower #9)

The other grower in this segment wanted to get out of horticulture all together. He had only produced pears on his property after pulling out peach trees and had relied on SPCA to take the majority of his pears and all of his peaches in the past. Last year was the first year that the real impacts had been felt from the SPCA reductions. He was limited with what SPCA would take as well as the distillery, so the rest remained on the trees because he couldn't afford to pick them. He had sprayed them with cheap spray for pests and diseases. He was hoping that the government would pay to remove the trees because he was at his debt limit with the bank. He felt he was unable to transition to another industry until the trees were pulled:

> *'I want to pull out all of my fruit trees and go into something different with a more promising market and is quick, but I don't know what that is yet.'* (Grower #16)

Segment 5

The four growers in this segment didn't have enough cool storage to store their own fruit so they relied on other cool stores to take the fruit.

The property sizes of these growers were between 45 acres and 200 acres. They highlighted the reason they couldn't supply the supermarkets was because they don't grow the volume that they are looking for. It seems that small acreage and many different varieties grown on the one property, limits the ability to grow enough to be involved with a supermarket.

> *'You've got to be in a big way to be able to supply Safeway or Coles and you've got to be able to supply all year round, which we couldn't do.'* (Grower #12)

> *'In some years, we won't store anything at all ourselves because I consider that the cool stores have access to better markets than what I have access to.'* (Grower #15)

The growers in this segment who have supplied SPCA had been proactive in how they managed their fruit trees to ensure a good return on their pears and have also pushed out trees to make way for varieties of pears or other fruit types. It was evident that they have the skills and capabilities in fresh pear production and grow their pears according to the market they want to sell them to.

> *'As far as we're concerned, we run our business on the basis where SPCA doesn't exist. The only thing we supply them is some apricots and if they stop taking the apricots as well, we'll push them out.'* (Grower #12)

> *'Our business is expanding; we'll grow more fruit, get new varieties and take out blocks occasionally'* (Grower #2)

> *'If we're going to survive we've got to look for new varieties and where there is a good return.'* (Grower #19)

Similarly to segment 1, there was optimism in this segment regarding the future of pears in the Goulburn Valley.

> *'Yes, I hope to continue – certainly pears are our best proposition, in my opinion.'* (Grower #15)

Segment 6

There were two growers described in segment 6. Neither had any cool storage on farm and both relied on one particular cool store operator to take their fruit. The properties are 48 acres and 400 acres. One of the properties was predominantly a pear growing orchard 15 years ago but had reduced the proportion of pears on the property. One reason for shifting away from pears was the low return:

> *'No I can't see ourselves growing more fresh pears. There's not enough return in pears, we won't invest in new plantings.'* (Grower #3)

The other property was also predominantly pears (Williams, Peckham's and Buerre Bosc) but the priority was to keep whatever was already in the ground because he felt that it would be a better way to manage his property than to pull them out. This grower had some bare land as a result of pulling out apricots and plums that were meant for SPCA but was concerned about not getting the returns on new development.

> *'I've pulled out apricots and plums but I haven't replanted it because I'm worried about not getting the returns.'* (Grower #7)

Grower #3 described expanding the business but not through increasing the property size, rather through intensity of planting which had required a lot of research given the expense of the development. The new developments included investments in apples and cherries. They have Williams and Packham pears on the property of which a third will go to SPCA for canning until they will no longer take them. In the past they had tried Buerre Bosc and Josephine but they weren't making any money so they pulled them out and directed more attention to apples and cherries.

Grower #7 won't be expanding or redeveloping in the near future because that would require more labour inputs which he felt were too expensive. He will wait to see what happens with SPCA before he makes a decision about the future of his farm.

'If you haven't got manpower and you haven't got big money, you shouldn't expand.' (Grower #7)

Segment 7

This segment contains only one grower. They don't have any cool storage and distribute their fruit to different cool stores depending on who is offering the best price. His total land area is 300 acres.

'We distribute our fruit to three cool stores. We compare their terms and we weigh up the option, who gets more fruit, who gets less fruit depending on the returns.' (Grower #21)

He is a relatively new orchard owner with positive aspirations for his business in the future. The property he bought had Williams and Packham's already established and had planted Red d'Anjou on trellis to bring them into production earlier and reduce the labour to manage the trees in the future.

'If you go on trellis it's a little bit expensive, but in the long run you still come out in front because the labour is just training the tree to get to the top and after that it's just maintaining.' (Grower #21)

He was also managing his Williams trees to keep healthy just in case SPCA required them in the future, and also to supply the domestic market.

'This year we cut a lot of branches from our trees so they don't produce so much fruit. We try to grow a bit more quality, like size and not quantity.' 'The cannery is still taking our canning plums and apricots so we still have foot in the door, and if they do demand pears, we can provide them.' (Grower #21)

There was a lot of empty land on this grower's orchard which he was very keen to introduce a new pear variety to in the future. He was very enthusiastic about the new fresh pear varieties that he had been hearing about from other growers.

Segment 8

There were four growers in this segment, all of which did not have any cool storage and relied on multiple cool store operators to take their fruit. Property sizes ranged between 30 acres and 60 acres. They indicated that they would not grow fresh pears in the future and that their business was in jeopardy because of the SPCA reductions. Finding a market for their fruit and not being able to afford more debt to invest in redeveloping the property was creating very difficult circumstances for them.

These growers reported having no time to wait for production of new trees if they were to invest in them because it would mean taking some part of their property out of production for a long period of time. They would then be faced with no income to repay the debt.

'I wouldn't put in a new variety of pear in the future because it takes too long to make money.' (Grower #11)

'It's an expensive exercise [to develop a block] and you've got to wait to get production.' (Grower #18)

They were further impacted by the fact that they produced Williams's pears which were not wanted by SPCA and were very hard to sell on the fresh market considering they don't have a relationship with a cool store operator that may be able to sell them.

'There's a future for some blokes out there because they have a big cool store, they've always got their markets. But a bloke like me with 30 acres, what do you do?' (Grower #18)

Segment 8 growers had thought about reducing the long production time of pears and investigated different growing techniques such as trellis. These growers may have been either not confident with the technique or they felt it was not the best technique for growing fresh pears. There were also concerns about the increased labour and time requirements of trellis systems:

'Trellis may help to achieve production earlier but then there is shading issues, may get disease problems, knotting.' (Grower #11)

> *'It's an old orchard and so I've never gone away from traditional free standing trees because when they talk about trellis, it becomes a bit more labour intensive. I mean it's good but there's a bit more work involved.'* (Grower #18)

All of the growers in segment 8 had thought about how they could get out of the horticultural industry because of the preceding problems.

> *'The saddest part is if I pulled it out and lasered it and fenced it, I'd get more for it [the property].'* (Grower #1)

> *'We'll never sell it as an orchard. No one is going to buy orchards these days.' 'The way the industry is going, a block like this, there's no survival anymore. The only way is to get out.'* (Grower #18)

> *'For us, we're a small operator, we don't see a future in horticulture. If the property sells after the season, good and well. If it doesn't sell, we are seriously contemplating bulldozing, flattening the whole orchard.'* (Grower #23)

Discussion

The key objective of this study is to improve understanding of who is in the market to grow fresh pears and why; what types of varieties they might be interested in growing; and what types of markets they may supply. Structured interviews and the data segmentation of 25 fresh pear growers revealed several important themes around constraints to production and markets; which in turn enable several observations around the future of the fresh pear industry in the Goulburn Valley.

Table 1 provides summarised characteristics of the segments under the themes of production, market, profitability and the key reasons for not including fresh pear production in the future of their business. Production takes into account the management of trees, the choice of variety or fruit mix, skills and knowledge, fertilizer, irrigation or pest management. Market incorporates elements within the supply chain, where the fruit is intended to go and what drives that decision. Profitability provides the drivers for decision making to achieve a profit. We have also distinguished the reasons why growers will not incorporate fresh pears into their business in the future. The points provided in the table were discussion topics with growers, therefore where topics are absent, discussion did not take place.

We go into further detail of these themes under Constraints to fresh pear production, and the future of fresh pears in the Goulburn Valley.

Table 1 Summarised characteristics of pear growers in segments

	Production	Market	Profitability	Segments not interested in fresh pears
Segment 1	• Canning varieties removed quickly • Highly developed skills and knowledge to produce quality fresh fruit • Access to new varieties • May have already planted a new pear variety	• Importance of relationships (with supermarket and growers) • Standard of fruit sourced from other growers • Some exporting where there is a profit	• Strive for a high pack out percentage • Finding a buyer for fruit that doesn't meet supermarket specifications sourced from other growers	**Segment 2** • Age • Can't wait for pears to produce a commercial volume • Investing in other fruit types
Segment 3	• Have been transitioning to fresh varieties over a number of years • Highly developed skills and knowledge to produce quality fresh fruit	• Developed relationships within the domestic market over the years • Sell to the best price	• Supermarkets dictate price hence sell to best price • Have some cool storage to keep fruit until the best price is found	**Segment 4** • Can't wait for pears to produce a commercial volume • Investing in other fruit types due to thoughts on consumer demand • Cost of development • Unable to go into more debt
Segment 5	• Small land areas • Williams pears are a large proportion of their pears • Have skills and capabilities in fresh pear production	• Don't grow the volume that supermarkets want • Rely on a cool store to take the fruit	• Managed William trees to produce fruit intended for the domestic market	**Segment 6** • Low returns in pears generally • Investing in other fruit types
Segment 7	• Small land areas • Williams pears are a large proportion of their pears • There is hope SPCA will survive • Some leaving fruit on trees	• Rely on multiple cool stores to take the fruit • Where a buyer is found they are selling Williams pears, affecting the profitability of Packham pears	• Managed William trees to produce fruit intended for the domestic market	**Segment 8** • Small land areas • Unable to go into more debt • Can't wait for pears to produce a commercial volume • Want to exit horticulture

Constraints to fresh pear production

The interviewees highlighted several issues involved with producing fresh pears in the Goulburn Valley. These have been compiled and discussed under broad concepts of block redevelopment, return for investment, cool storage, reductions in the canning sector and consumer demand.

Block redevelopment

Considering the number of years fruit trees are in production, the decision to either remove trees to plant new trees or deciding on what to plant in bare land is not taken lightly. Factors such as cost of development, cost of management and return on investment are considered during the decision process. The grower in segment 2 won't plant pears because they take too long to produce and at his age, can't wait for the returns. Those in segment 4 are also unwilling to wait for the pears to produce. Additionally, the cost of developing a pear block is an issue for them. A grower in segment 6 is an example of pulling out trees and not planting new ones because of concerns the returns won't be gained. Growers in segment 8 may want to remove trees to plant more favorable varieties of fruit but considering the very small property sizes (between 30 and 60 acres) there is very little flexibility in the farm system to allow this to happen.

Many of the growers in segment 1 acknowledged their involvement in clubs to secure new varieties. This model regulates how many trees are in production, and therefore regulates the supply and demand to maximize the returns. Growers in segments 5 and 7, who were interested in growing fresh pear varieties in the future, thought they would be able to get access to the new varieties through a nursery which is their normal process. The difference between segment 1 growers and segments 5 and 7 is how proactive they have been to develop relationships throughout the supply chain and securing their membership in club varieties or any other way to access a new variety. Growers in segments 5 and 7 may rely on industry communication such as newsletters to know when a new variety is available and how to access it.

Return for investment

A consistent theme from the interviews was that for any new tree to go in the ground, the cost is a significant deciding factor. These costs are then impacted by how long it takes to make a return on the initial investment in the new development (segments 2, 4, 6 and 8). An additional risk is knowing if the returns will be good enough to make a profit after paying off the development. Growers in segment 2 and 4 highlighted the long production time for pears, hence the saying 'you grow pears for your heirs'. These growers indicated a shift from pears (canning and fresh varieties) to stone fruit because of the quick production time to get a return and the different harvest time compared to pome fruit.

Segment 4 and 6 growers were not convinced that pears would ever be in high demand with consumers. They felt that if they had to make a decision about investing in a particular fruit type, fresh pears wasn't going to provide big returns because of factors such as: 1) the length of time it takes to produce a commercial quantity; 2) indications of demand from current fresh pear varieties by consumers and; 3) the success of other pome and stone fruit in the domestic market.

Some growers in segments 4 and 8 were unable to invest in new developments because the property was at its limit of debt with the banks. This had put them in a stalemate position where they would not have the money to pull out trees and transition to a new enterprise, nor were they making money from their current trees.

It is also a plausible consideration that larger acre farms may have greater flexibility to invest in a new development. High productivity in one part of the farm may offset no productivity in another, however on a smaller farm production may need to occur at all times to cover costs, therefore no productivity in a small area of the farm may not be an option. Segment 1 growers indicated the quick decision to remove all canning varieties of fruit on their properties the day after SPCA announced reductions, however there are some growers in segment 8 that want to remove trees but can't afford to produce nothing from their land for a period of time.

Cool Storage

At the first level of the Farm Context Tree (page 8), there is a separation of those that have enough cool storage for what they grow on farm and those that don't (segments 5 to 8). Segments 6 and 8 had indicated they were not interested in growing fresh pears in the future. Apart from one grower in segment 6, who had 400 acres and was investing in other fruit types, others in both segments had two things in common. Firstly, the property sizes were relatively small compared to growers in other segments (between 30 acres and 60 acres), and secondly, canning pears (Williams) had made up a large proportion of their pears and they had relied heavily on SPCA to take them in the past. They had now found themselves faced with big reductions in the canning sector and so had tried to sell their canning pears on the domestic market with little success. Those in segment 8 had found this particularly difficult considering they didn't have an existing relationship with one cool store operator, instead needing to contact several cool store operators to see who could take their fruit.

From a cool store operator perspective, many had found it difficult to communicate to the growers regarding the specification standards required by the bigger supermarkets, making it difficult to fill their quota. Cool store operators also had to often highlight to growers that their fruit was not up to standard, creating awkward conversations. We found that Segment 1 growers had well-established, direct relationships with the supermarkets and knew the specifications required

to achieve pack out and therefore managed their trees for that purpose. Segment 1 growers were impacted by the proportion of pack out percentages of fruit sourced from a grower. This is because there is a higher return in pack out fruit to the supermarkets. They are then forced to find somewhere to sell the remainder at a price that provides a return. During the interviews, there were many conversations describing practices in the last two years that involved 'getting rid' of bins of fruit for less than what needed to cover costs. This was so they could get them out of their cool store and make room for the next phase of fruit.

Reductions in the canning sector

One grower in segment 4 and all growers in segment 8 were impacted significantly by the reductions in the canning sector. They were largely canning fruit growers, growing a large proportion of Williams's pears. They commonly reported failing to find a buyer for their Williams pears, which may be because of the lack of relationships with cool store operators, and some had been forced to leave fruit on trees to minimize costs. It was evident that removing Williams trees and replacing them with a new variety of fresh pear was not considered an option for these growers.

Historically horticulture in the Goulburn Valley region was primarily for canning purposes therefore many growers in the region grew fruit to supply the local canneries. Few expanded into fresh fruit varieties to supply the domestic market as a way of spreading risk. Those growers with a significant proportion of their farms producing canning varieties are left with the option of selling them on the fresh fruit market. This has impacted on the pear industry in general because the Williams pear is the first pear harvested in the season. If there is an oversupply in the domestic market this will then impact on the price of Packhams which is grown as a fresh variety of pear. One grower in segment 6 and the grower in segment 7 have a large proportion of Williams pears on their property and have relied on SPCA in the past, but won't do anything with the trees until SPCA has closed down completely, indicating there is still hope among some growers that the canning sector may survive.

Consumer demand

Part of the decision to grow fresh pears is also having an understanding of what consumer preferences are. Growers in segment 4 have indicated a shift from pears to stone fruit and selling them to the Asian market. This was realised after a trip overseas where they visited supermarkets and saw pears being presented near the back of the shelf. They were convinced that a pear was not appealing to Asian taste. The shift to stone fruit for some is also an acknowledgment by growers that too many apples are being grown and there is a need to diversify more.

The future of fresh pears in the Goulburn Valley

There is some optimism regarding fresh pear production in the Goulburn Valley as described by some of the interviewees. In this section we describe the potential for growing fresh pears in the future regarding cool storage, fresh pear varieties, development ability and the transition from a canning culture to fresh fruit production.

Cool storage

The Farm Context Tree suggests not having enough cool storage for what is grown on farm (segments 5 to 8) is not an influencing factor of wanting to plant fresh pear varieties as can be seen in segments 5 and 7. Those in segment 5 were keen to keep up with favorable varieties of fresh fruit to survive in the industry. However the one grower in segment 7 relied on several cool store operators to take his fruit. He was a relatively new orchardist and had aspirations to build his own cool store in the near future.

Those in segment 1 have found themselves in a position where they are the marketer for other fruit growers. Historically they built the cool stores to create flexibility for their business in the fresh market and minimize the reliance on the canning industry. They built their enterprise to not only grow fruit but also pack and market the fruit, creating some employment in the region as well. The space that these growers fill in the supply chain is significant considering the reductions in the canning sector and the shift from canning varieties to fresh varieties grown in the region. The significance of these growers may not be fully realised until the effects of the reductions of the canning sector are completed.

Considering the shift from a canning industry to a fresh fruit industry, cool storage is vital to manage the fruit quality. Not all growers have cool storage, as can be seen in segments 6 to 8. There are some that aspire to build a cool store big enough to store all fruit grown on the property (segment 7) then there are others that have a reliable relationship with a cool store operator and don't feel they need to invest in that type of infrastructure (segment 6). The growers in segment 3 have just enough cool storage to control when a product can be sold giving them the best price. This provides them with flexibility in the market without having to invest in more infrastructure. Growers in segment 5 don't have cool storage but they have aligned themselves with one cool store operator, which implies trust between the grower and the cool store

operator and a level of reliability to take the fruit. The property sizes limit their ability to grow the volume required to supply the supermarkets which is why the current situation to supply a cool store operator suits them.

It is fair to assume there would be very little expansion of horticultural areas in the Goulburn Valley in the future. However, if all the areas currently acknowledged as a horticultural enterprise were to shift from canning to fresh fruit for the domestic market, would it impact on the industry in the region and what products and services would be required to meet the needs of the sector? For example, what fruit mix can be sustained with the current amount of cool storage, considering the different harvest times in the season.

Fresh pear varieties

Pears are known to take a long time before they can produce a commercial quantity of fruit, even with new rootstocks or growing techniques such as trellis. Some growers feel they can't wait for the return on investment and shift the proportion of pears grown on the property to other fruit types that they see will give them a quick return and are known to be in demand (segment 4). Other growers (segments 1, 3, 5 and 7) are enthusiastic about new pear varieties for the fresh market and have already incorporated a new pear variety into their farm (segment 1) or have heard about new varieties and are keeping a close eye on newsletters to get an indication when they may become available.

Development of new varieties is protected through licensing and trademarks and gaining access to a new variety can be through different avenues. The current pear varieties are open to all growers but newer varieties may require membership to clubs where production numbers are regulated to manage supply and demand and therefore maximize returns on investment. Within the study, only segment 1 growers talked of being a part of clubs to gain access to new varieties. Another way to gain access is to be a part of a co-operative involving a few growers to approach a company with a licensed variety to ensure the company will be supplied with a required volume to be commercially viable. If there is success with new varieties in the fresh pear industry with consumers, it may be a significant consideration to understand who may have access to licensed varieties and what will that mean for the number of fresh pear growers in the Goulburn Valley.

Development ability

As soon as growers in segment 1 heard SPCA announce reductions, they pulled out all canning varieties of fruit and replaced them with a fruit type they saw had potential to provide good returns, or have left bare land to give them time to research what to grow. Segment 5 growers also removed canning varieties but the smaller property sizes limited how much they could remove at one time.

Segment 5 have between 45 and 200 acres properties and have been proactive in managing their fruit trees to ensure a good return. They pushed out trees to make way for varieties of pears or other fruit types when SPCA reduced the quotas. They have been able to minimize their dependence on the canning sector and adapt their properties to a domestic market. They have a very optimistic attitude to the future of horticulture in the Goulburn Valley which includes growing fresh pears on their property. These growers are an example of remaining viable by reading signals and making decisions based on adapting their business to the marketing and processing environments.

Transition of a 'canning culture'

Historically fruit growers in the Goulburn Valley have been able to grow fruit for the purpose of canning, knowing they will be able to offload all of the fruit grown on their property and at a certain price that would cover the costs associated with managing fruit trees. The processes involved with producing canning fruit compared with fresh fruit for the domestic market required a transition in the way fruit was produced and in some cases changing variety all together. There is an attitude that growers speak of that relates to a 'canning culture' in the Goulburn Valley, a level of stubbornness that limits a growers ability to adapt to changing markets.

The impact of the SPCA reductions was felt in the 2012/13 season by segments 6 to 8 but their concern was how big that impact will be to their business in the 2013/14 season considering even more Williams's pears will enter the domestic market. There will be a period of time that the glut of Williams's pears will affect pear prices in general, but it is unknown how long this will be.

The growers in segment 3 provide examples of transitioning a property from supplying fruit to the canning sector, to supplying a domestic market. They started moving voluntarily to fresh fruit production a long time prior to the SPCA reductions because of the risk involved with relying on one sector. This is a significant move considering the change in tree management needed to grow quality fresh fruit to meet high standards, compared to fruit for canning with no minimum standards. For growers with no experience in growing fresh fruit, it may take time to gain skills required to supply top quality fruit. Blemishes won't go unnoticed considering the high specifications supermarkets have which, if they are growers in segments 5 and 7, the cool store operator who they supply will pass on those specifications to them.

Considerations

On the basis of the preceding results and discussion, we recommend that the following issues are considered when developing a plan to ensure the industry has the resources and capabilities to achieve objectives;

1. Long production time of pears

It is a fact that pears take a long time to produce a commercial quantity of fruit. There are some advances in technology to reduce the time such as use of dwarf rootstocks however the attitude of growers is they can't wait for the returns on pears. The situation that many Goulburn Valley growers have found themselves in is they need a quick solution to a problem that has rapidly unfolded. This sense of urgency has steered some growers away from producing pears if they are unable to offset the development on another part of the farm that is making a profit for them. The cost of the development and the time it takes to get some returns is not a viable option for some growers.

2. Finding opportunities to plant pears

Developing a block and planting fresh pears depends on available land, capacity to take on more debt, able to afford the period of time there is no production and capability. For many growers there is still a high proportion of Williams pear trees that are very old and have bigger spacings and therefore don't have the tonnage per hectare that may come from planting a fresh fruit type. It seems logical to pull out most of the Williams pears and plant a fruit type with greater potential for better returns. However for some growers this is not an option due to not being able to take on debt and the variety mix they have on their farm (e.g. mostly canning varieties).

3. Grower relationships with cool store operators

Horticulture is a heterogeneous industry considering the diversity of marketing end uses including canning, fresh and export. Additionally growers fall within a spectrum of types depending on the size of their properties, what has been grown on the property in the past and the infrastructure available to them. Recently some growers have had to decide how to overcome the reductions in the canning sector, many of them relying on that sector since they (or their predecessors) started in the horticulture industry. Growers started producing fruit for the fresh domestic market at different times, some initiated the move by themselves, and others have done it at the time of the SPCA announcement. Many growers have always grown a proportion of fresh varieties of fruit on their properties and therefore have either relied on a cool store operator to take their fruit or they have the infrastructure to store their own. The outcomes of this study show that a strong, reliable and trusted relationship between a cool store operator and a grower can secure a reliable end point for the grower and provide consistent quality standards of fruit for the cool store operator.

4. Understanding fruit specification standards and how to achieve them

The objective of the cool store operator is to have a high percentage of pack out. They themselves manage their trees to produce fruit that is consistent with the specifications to achieve a high pack out percentage. Considering it is up to the cool store operator to decide to take fruit, it is in the best interest of the grower to understand what the specifications are that the cool store operator is working to and aim to achieve them. Many Goulburn Valley growers have produced fruit for canning in the past which requires less quality specifications. The knowledge and skills required to produce a high percentage of pack out may need to be addressed to improve capability in the region and sustain the industry in the future.

5. Accessing new pear varieties

There are many growers that have accessed new varieties of fruit in the past because they felt it fit a certain criteria that they were looking for. There have not been many new varieties of pears but there are a few appearing, increasing enthusiasm to plant pears with some growers. Accessing new pear varieties tends to be linked with growers already a part of club varieties. Considering these varieties will have regulated production numbers, it seems beneficial for growers interested in growing fresh pears but are outside club membership to form co-operatives and approach companies with a favorable variety. For some Goulburn Valley growers, deciding what to replace Williams trees with will have happened before the emergence of new varieties of pears become available to them.

6. Export potential

Growers spoke about exporting fruit years ago when profitability was high. There are a few in segment 1 exporting a small amount of fruit. The majority of the growers however are not exporting fruit and won't unless they find an overseas market that is profitable.

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