Sensational Summerfruit

A bold plan for growth

The business case

(Submitted AUGUST 2018)

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The status quo will not cut the mustard

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Summerfruit is a portfolio of five fruits (apricots, cherries, nectarines, peaches, and plums) grown by 280 growers, with 35 export packhouses, 25 exporters and five New Zealand domestic wholesalers. Summerfruit NZ is the industry organisation.

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Contents

1 Executive summary

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A recent industry-wide growth strategy has identified the bold goal of increasing the value of the industry to $465 million by 2035.

To achieve this growth the summerfruit industry needs to do things significantly different – a paradigm shift. Achieving this will challenge the industry's current practices on every level.

The growth will be based on the following five major initiatives.

The consumer
– delivering to the consumer healthy, flavourful fruit with quality, freshness and New Zealand provenance.

New markets
– new markets need to be opened up, including online retail models, based on New Zealand's competitive advantage of quality fruit.

Velocity through the supply chain
– providing fruit to market faster, in fresher condition and in consumer-ready packs.

High performance orchards
– providing greater volumes of quality fruit with efficiency and greater profitability.

A stronger industry
– characterised by innovation, scale and greater profitability.

The above initiatives are delivered through five projects with strong linkages and interdependencies.

Benefit to New Zealand through an increase in GDP of $150 million.

The successful delivery of this programme of work will be measured by the following major outcomes:

- expansion of premium and targeted export markets and greater New Zealand market uptake
- fast and successful adoption of innovation and new technology all along the value chain and particularly in packaging, packing and transport
- a significant increase in planted area, associated infrastructure, eg packhouses and employment opportunities
- a major increase in consistent production and quality through the use of more high performance orchard systems with environmental benefits of less water, fertilisers and pesticides
- new varieties commercialised delivering consistent consumer appeal
- increased industry value to $465 million by 2035 and increased financial returns for all parts of the summerfruit industry (growers, packhouses, exporters, marketers)
- development of new employment opportunities in IT, science and engineering to service an increasingly technology driven industry throughout the supply chain
- benefit to New Zealand through an increase in GDP of $150 million.

The benefits will be retained in New Zealand because the industry is land based and owned by New Zealand producers and exporters, and the PVR for any new plant material is held by the New Zealand Institute for Plant & Food Research for the benefit of the industry.

Summerfruit NZ will be the contracting party. The programme management staff who are recruited will have domain knowledge to provide technical leadership as well as project management experience. In addition, an industry advisory panel will be put in place to act as a reference group for the programme steering group and the programme managers. The panel will be a mix of industry members and independent expertise from throughout the supply chain.

The programme funding model is that levies will be used by Summerfruit NZ to carry out the programme on behalf of the industry. However, much of the project work will be carried out within the industry itself with close involvement of exporters, packhouses and growers. Within industry trials are a feature of all projects so that information and innovation can be rapidly integrated into the industry.

The successful outcomes of the programme will be dependent upon significant private investment by industry participants during the uptake and downstream. This is estimated to be around $150 million in orchard systems, and $130 million investment in packhouses and new technology. (This does not include the cost of additional land at about $155 million.)

Government funding through this PGP programme will therefore help ‘seed’ the industry, to create new information, innovation and industry systems, to move to a new state and attract substantial new private capital. This programme of work is very much not business as usual. Government investment is needed to help create the momentum across the supply chain so that the range of innovation needed will occur confidently and with the necessary speed and scale.

2 Proposal

2.1. Vision

The vision is for a growing vibrant industry with all five summerfruit contributing to the growth in both domestic and export markets. This will require a transformation of apricot production and marketing, preservation of the growth momentum for cherries and building a foundation for future growth for plums, peaches and nectarines.

In order to realise this growth, the summerfruit industry needs to achieve:

- a major increase in consistent production and quality through the use of new high performance orchard systems, with greater profitability
- velocity in getting fruit to market through the fast and successful adoption of innovation and new technology, particularly in packaging, packing and transport
- new varieties with consistent and significant consumer appeal.

The summerfruit industry has recognised that it is in the midst of huge external forces and change, and must take ownership to drive this change favourably. Achieving this will challenge the industry's current practices on every level. However, as discussed at the 2018 Summerfruit NZ conference: 'The status quo will not cut the mustard!'

Significant industry development will be needed, characterised by being dynamic and open to change, and innovation, with significant scale and greater profitability.

An almost threefold increase in the value of the industry will provide increased profitability for all parts: growers, packhouses, and exporters. For the wider economy, there will be the development of new employment opportunities in IT, science and engineering to service an increasingly technology driven industry throughout the supply chain. There will be benefit to New Zealand through an increase in GDP of $150 million.

2.2 Current situation

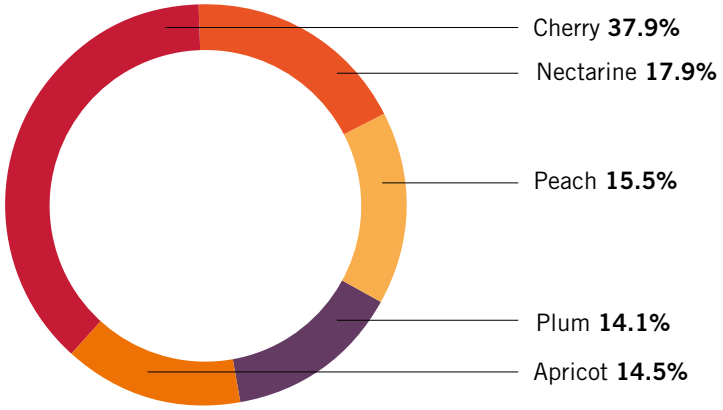
Summerfruit NZ is the industry organisation that represents growers of apricots, cherries, nectarines, peaches, and plums for both New Zealand and export markets. The industry comprises 280 growers, 35 export packhouses, 25 exporters and five mainly New Zealand wholesalers. Total current industry value is about $112 million.

A nine member board governs Summerfruit NZ:

- five grower elected directors
- three export directors nominated by the Summerfruit Exporters Committee (SEC)
- one co-opted director currently representing the interests of the NZ domestic marketers.

The chair is elected from within the board.

Figure 1. Total volume by % in 2017-18



Summerfruit NZ is funded by a Commodity Levy Order (2014), and is a Recognised Product Group under the New Zealand Horticultural Export Authority (HEA). As well as the representation on the board, there is close interaction between Summerfruit NZ and its exporters.

Exporters of summerfruit are required to be licensed by the HEA, in consultation with Summerfruit NZ, before a licence is granted. The Summerfruit Exporters Committee is a recognised committee under the HEA. Membership of the SEC consists of all the main tier 1 exporters.

The SEC meets annually, with the CE of Summerfruit NZ in attendance. It is the exporters who collect data weekly during the season, as they are the first point of sale under the levy.

There are two main growing regions in New Zealand – Central Otago and Hawkes Bay. Limited volumes of cherries are also grown and exported from Marlborough while small pockets of peach, nectarine and plum production occur in outlying regions such as Gisborne and Auckland. Cherries are the largest crop by volume with only slightly lower volumes of peaches and nectarines, and lesser volumes of apricots and plums (Figure 1 above).

All summerfruit are sold in New Zealand and in export markets, but the relative amount differs with the summerfruit.

For cherries, about 66% is exported to 15+ countries, mostly in Asia with a major focus on Taiwan, China, Vietnam and Thailand. Cherries are exported in 5kg, 2kg and 1kg packs. Cherries are washed and chilled before grading and packing, and transport is designed to keep them moist and chilled to destination. Fruit is moved from Central Otago to Christchurch and then via air freight to Asia. Freight space is an issue as cherries compete with lobster and other fish and chilled meat for limited space.

About 30% of apricots are exported and mostly to Australia. For peaches/nectarines less than 1% are exported and this to Hong Kong and Singapore. Similarly, less than 1% plums are exported, to USA with a tiny amount recently to China.

Apart from the recent growth in cherries, growth has been sluggish. The significant industry risk is that the industry will remain relatively small and possibly other alternative crops might out-compete summerfruit for land at the margin. The industry has addressed this risk through commissioning market research and strategic planning.

- There is an opportunity to deliver to consumers in various countries healthy fruit with the right eating experience and with quality, freshness and New Zealand provenance.
- Eight Nielsen surveys of New Zealand consumer attitudes towards summerfruit have been conducted since 2009. These surveys indicate that there is still room for significant growth in the NZ market for all five fruit types. This opportunity depends on the industry fulfilling consumer demand for consistent quality and taste.
- The Summerfruit Business Plan[1] identified the main initiatives that will be required to achieve a $465 million industry by 2035.

This PGP programme of work has been developed to enable the industry to achieve this goal.

[1] *Summerfruit Business Plan, NZIER report to Summerfruit NZ, May 2016*

2.3 Opportunities, challenges and solutions

The summerfruit industry has a bold goal of increasing almost three times the value of the industry to $465 million by 2035, compared to BAU.

Consumers need to be provided with healthy fruit with the right eating experience and with quality, freshness and New Zealand provenance. The industry needs to expand in premium and targeted new export markets; with new online sales models; and with a greater New Zealand market. New infrastructure and logistics will be required throughout the supply chain. High performance orchard systems will consistently deliver the volumes of quality fruit. A vibrant and stronger industry will develop to take up the opportunities.

We have identified five main opportunities for Summerfruit NZ. Table 1 below summarises each opportunity, its challenges and the work that will be undertaken in this PGP programme.

Table 1. The five opportunities, challenges and solutions for Summerfruit NZ

1 Understanding consumers		
Opportunity 1 Deliver to the consumer healthy, flavourful fruit with quality, freshness and New Zealand provenance	**Challenge 1** Consistently provide a high-quality experience from New Zealand summerfruit for all consumers	**Solution 1** Understand consumers, to deliver summerfruit with desired attributes and high-quality eating experience
2 New market development		
Opportunity 2 Expand current markets and open new markets, including online retail models, based on fruit with high-quality eating experiences	**Challenge 2** Significant expansion of premium export markets and the NZ market required	**Solution 2** Work with exporters to provide the resources and information for market development and market access
3 Innovative packaging, packing, transport solutions		
Opportunity 3 Build on New Zealand's competitive advantage of quality and provide fruit to market in fresher condition and in consumer packs	**Challenge 3** Substantial innovation in the supply chain will be required to move with velocity large volumes of fruit and in different packaging configurations so that fruit reaching the consumer is of unrelenting and unquestioned quality	**Solution 3** Deliver a suite of innovations in logistics, packing and packaging for fast transport, to give the benefit of the shelf life to the consumer
4 High performance orchards and improved genetic material		
Opportunity 4 To provide the volume of desirable fruit through new varieties and new high performance production systems	**Challenge 4** To provide practices that will maximise fruit yields of the right varieties to provide consistent quality in an environmentally sustainable way	**Solution 4** Develop new growing systems and new varieties to significantly and consistently maximise yields and quality
5 Industry development		
Opportunity 5 Build a stronger industry characterised by innovation, scale and greater profitability	**Challenge 5** Significant development and change management is required to integrate new practices into the current industry and attract new investment	**Solution 5** Ensure the industry is equipped with models and practices to meet the challenge to increase by almost threefold its value by 2035, compared to BAU

These are discussed in more detail over.

1 Understanding consumers

Asian consumers love fresh fruit. Summerfruit represent health, goodness and provenance during a northern hemisphere winter and consumers will pay for this. For New Zealand consumers, summerfruit represents summer's arrival.

There is an opportunity to deliver to consumers in various countries healthy fruit with a great eating experience and with quality, freshness and New Zealand provenance. However, this is problematic because summerfruit are difficult to produce with consistent quality, and are fragile to transport. In addition, some varieties do not deliver the eating experience required.

The challenge is to consistently provide a high-quality experience from New Zealand summerfruit for all consumers.

We need to:

- develop a sophisticated understanding of what creates high value for consumers of fresh fruit, particularly in target Asian markets
- improve 'customer satisfaction' through new varieties with greater consumer appeal and eating experience
- provide consistent high-quality fruit out of the orchard
- develop innovative packaging and transport to deliver high-quality fruit with remaining shelf life
- promote health and nutritional messages about the unique value of New Zealand summerfruit.

The work will be delivered through the following projects.

Project 1 Understanding consumers

Project 3 Innovative packaging, packing, transport solutions

Project 4 High performance orchards and improved genetic material

2 New market development

The industry needs to expand in premium and targeted new export markets with new online sales models, and with a greater New Zealand market. For instance, China has been developed as a market for cherries, but not for the other summerfruit.

Similarly cherries are sold in Taiwan and other South East Asia countries, and there is an opportunity to develop them for the other summerfruit. New varieties of highly-flavoured apricots provide the right entrée to Asia, in particular China.

Regular Nielsen surveys indicate that there is still room for significant growth in the NZ market for all five fruit types. This opportunity depends on the industry fulfilling consumer demand for fruit with a great eating experience and consistent quality.

The opportunity for new markets for new nutraceutical products will also be investigated. As volumes increase this is a new processing use for a corresponding increase in reject grade fruit. Furthermore, the ability to promote the health benefits of summerfruit will increase marketing opportunities within some market segments.

The challenge is to:

- understand the unique attributes and complexities of a range of markets
- identify and understand competitors
- prioritise the most appropriate markets
- develop good strategies for them.

Achieving this will lead to significant growth in sales and the development and expansion of premium export markets and the NZ market.

We need to:

- analyse market requirements and conditions for current markets and potential new markets
- develop a full understanding of competitors, including their production systems, in the identified markets and fruits
- identify strategies for new markets and opportunities to exploit unsupplied or underdeveloped markets
- prioritise the opening of new markets for specific fruits
- identify requirements and trial systems for traceability
- respond to changing requirements of emerging marketing channels, eg online sales direct to consumers.

The work will be delivered mainly through the following projects to ensure market development activities align with the information on consumers and the priority list of markets.

Project 1 Understanding consumers

Project 2 New market development

Further market information is provided in section 4.2.

3 Innovative packaging, packing, transport solutions

The new markets and market channels will require large volumes of fruit being moved from the tree to the consumer with velocity (which usually means by air freight) so that fruit is of unrelenting and unquestioned quality. Achieving this provides the industry with the opportunity to build on its competitive advantage of quality compared to its competitors.

This is hard to do because summerfruit production is easily affected by adverse weather, and consistent quality will be needed for new consumer packs. Freight systems and availability are not geared specifically for summerfruit and do not always match production.

The future state requires substantial innovation in the packaging, packing and transport systems.

We need to:

- create the options needed for rapidly moving a larger crop to the target markets while still maintaining highest quality
- understand the new requirements for exporting consumer packs for online sales and understand the impacts on existing packing systems
- identify any on orchard systems affecting quality
- recognise that modern consumers no longer want wasteful, unsustainable packaging
- analyse the requirements and the development of innovative packaging, packing and handling technologies
- understand internal systems and limitations within markets.

The work will be delivered mainly through the following projects.

Project 2 New market development

Project 3 Innovative packaging, packing, transport solutions

Project 4 High performance orchards and improved genetic material

4 High performance orchards and improved genetic material

This project will investigate and optimise the practices needed to produce consistent, high yields and quality. New genetic material will be taken through to commercial production.

There is risk and challenge in this work to get high performance production systems identified and proven for widespread industry adoption. There is also risk in that the varieties being developed may not meet consumer requirements sufficiently well for adoption.

We need to:

- develop high performance growing systems on all fruit types throughout the country
- bring forward genetic material to better meet market requirements
- identify the further product development closely linked to storage and handling
- achieve consistent fruit set including with novel pollination systems.

The work will be delivered mainly through the following projects.

Project 4 High performance orchards and improved genetic material

Project 5 Industry development

5 Industry development

The summerfruit growth strategy addresses the challenge of creating viable export-led growth for all summerfruit types. To do this we need to build a stronger industry characterised by innovation, scale and greater profitability. Current growers and packhouses will expand, and new entrants will be attracted to the industry.

The challenge is how to do this efficiently and effectively. Meeting this challenge in a sustainable way will lead an almost threefold increase to the value of the industry, compared to BAU.

We need to:

- develop innovative systems to collect and provide rapid, up-to-date information to growers including new entrants and all parts of the supply chain
- build industry awareness, understanding, and commitment
- have a reliable and accurate system for crop forecasting so that labour requirements can also be better managed
- develop interactive systems to enable growers to benchmark and compare performance
- prepare financial production models to encourage new investment
- provide information and support to new entrants to ensure that they are quickly able to meet the demanding standards
- increase the uptake rates of new technology
- increase orchard productivity and efficiency across all five summerfruit crops generating high value returns
- have an effective extension programme to ensure the industry is equipped with, and using, models and practices to meet the challenge to increase industry value by 2035.

The work will be delivered mainly through the following projects.

Project 4 High performance orchards and improved genetic material

Project 5 Industry development

2.4 Programme partners

Following the presentation of the proposed PGP programme at the 2018 Summerfruit NZ conference, a range of companies that work within the industry expressed their interest in being closely involved as the work commenced, with a view to providing financial and in-kind resources.

While it is difficult at this point in time to canvass widely partnership financial contributions for programme activities, it is anticipated that there will be considerable interest. Accordingly, a programme objective achievement measure for partnership financial investment has been drafted in Appendix 5.

The programme partners information has been removed as it is commercially sensitive information provided by private organisations and Crown entities for the purpose of submitting this business case to Government.

2.5 Overview of benefits from the programme

A summary of the benefits is presented below. Further analysis is in section 4.3.

2.5.1 Benefits to summerfruit industry

The following overall benefits are directly attributable to this programme and accrue to the industry:

- revenue increased by threefold to $465 million by 2035 over BAU
- widespread adoption of new high performance production systems for expanded, consistent production
- new entrants and new plantings
- innovations and new technology in place
- increased financial returns for all parts of the summerfruit industry
- long-term economic growth and sustainability delivered in the summerfruit sector.

2.5.2 Sustainability benefits

The significant sustainability benefits are:

- new high performance production systems which significantly increase the yield for lower inputs of water and fertiliser
- use of more sustainable packaging
- increased industry resilience (see section 4.3 for specifics).

2.5.3 Wider benefits to New Zealand

From the model for financial performance, it is projected that an addition $303 million will be generated. Based on the assumption that GDP increases by $0.50 for every $1.00 increase in exports or gross output[2] an increase in GDP of $150 million is attributable to the outcomes of this programme.

In addition, there are a number of spill-over benefits:

- the process industry will be positioned to become viable again through growth in production and new opportunities such as processing for nutraceuticals
- in R&D and innovation through new technology; such as robotics to pack and transport high volumes of quality fruit
- new packaging learnings for other crops
- development of new employment opportunities in IT, science and engineering to service an increasingly technology driven industry throughout the supply chain
- additional regional employment on orchard and in the packhouse
- economic stability, long-term economic growth in the provincial regions.

2.5.4 Retention of benefits in New Zealand

The benefits will be retained in New Zealand by all in the supply chain from growers through to the consumer, because the industry is land based and owned by New Zealand producers and exporters.

For the new cultivar selections which become commercially exploited in the programme, ownership of the PVR sits within Plant & Food Research. This ensures that the benefits of the new materials are retained in New Zealand.

2.6 Rationale for investment

To grow the value of the industry to $465 million by 2035, the summerfruit industry needs to do things significantly different – a paradigm shift.

This programme of work is very much not business as usual. New demand will be driven through consumer and market research, innovation and development. Significant new activities will be undertaken throughout the supply chain. Additional industries such as processing for specialist areas like nutraceuticals, are likely to emerge alongside the growth of the industry.

The projected growth will require downstream new capital investment in land, and on orchard and packhouse technology such as robotics, and innovation for packaging and transport. This is estimated at around $280 million (excluding land costs of $155 million). Confidence is needed for this investment as tree crops have long lead in times, eg six years before full production and revenue return.

Apart from the recent growth in cherries, growth overall has been sluggish. Without government investment and this programme there is a real possibility that this sluggish growth will continue and business practices remain the same. The industry will remain relatively small and possibly other alternative crops might out-compete summerfruit for land at the margin.

Government funding through this PGP programme will help 'seed' the industry, to create new information, innovation and industry systems, to move to a new state and attract substantial new private capital. Government investment is needed to help create the momentum across the value chain so that the range of innovation needed will occur confidently and with the necessary speed and scale.

[2] *Economic contribution of PGP – A cost-benefit analysis of potential impacts, NZIER report to MPI, May 2014*

3 Programme plan

3.1 Overview

Value is created all along the supply chain, from innovation in market access, packaging, transport, on orchard production systems, transferable technologies and improved genetic material – innovation can come from all of these. All of this is underpinned by industry systems which collect and share data, insights and benchmarking to enable rapid uptake of innovation (Figure 2).

The programme is delivered through five projects with strong linkages and interdependencies, based on innovation in the supply chain (Figure 3).

Figure 2. The Summerfruit NZ value chain

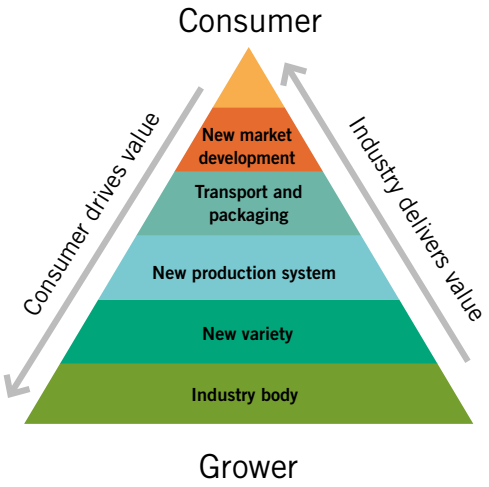
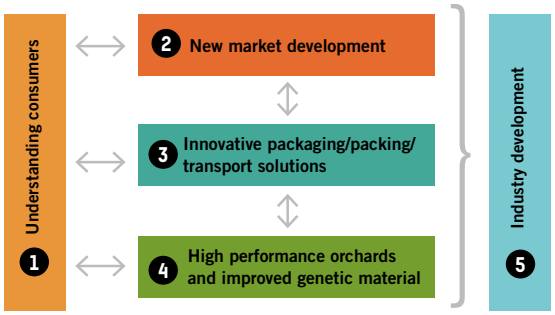


Figure 3. Five projects in the Summerfruit NZ programme



The five projects are based on the five opportunities the industry has identified in section 2.3.

Project 1 Understanding consumers

Project 2 New market development

Project 3 Innovative packaging, packing, transport solutions

Project 4 High performance orchards and improved genetic material

Project 5 Industry development

All of the projects span the duration of the programme and will also continue beyond the programme end.

The outcomes of this programme are set out in the Outcome Logic Model:

- new differentiated markets opened
- new varieties developed with consistent consumer appeal
- supply chain consistently delivers quality fruit with velocity
- increased returns for grower, packer and exporter
- a resilient and innovative industry developed for long-term growth.

The ultimate outcome:
All New Zealand summerfruit are positioned as high value fruit with target consumers, leading to a larger, profitable and sustainable industry.

3.2 Project 1 Understanding consumers

The competitive future for New Zealand summerfruit is differentiating for high value. This project will develop a sophisticated understanding of what creates high value for consumers of fresh fruit in target Asian and New Zealand markets in order to be able to provide the fruit the consumer wants.

Cultural variations within countries, new shopping channels and a focus on health and nutrition all require detailed investigation. With investigation comes the ability to grow our exports and fine-tune those sales within each market. This potential, both in New Zealand and the international market, will allow all five summerfruit crops to develop significant and sustainable growth.

Industry funded Nielsen consumer surveys indicate genuine potential for growth within New Zealand. Households without children and seniors are particularly strong demographic groups who are drawn to healthy, flavourful summerfruit. Our understanding of cultural demographics within New Zealand is yet to be explored.

3.2.1 Objective

The objective of this project is to move marketing of New Zealand summerfruit from broad spectrum to target audiences.

3.2.2 Activities

The suite of activities below will identify how to differentiate our fruit to deliver high value long term.

Activity 1.1 Demographics

In this activity we will use consumer research studies in New Zealand and target Asian countries, both current and proposed new ones, to carry out analysis into the purchasing preferences and habits of consumers. We will identify demographics by:

- age
- culture
- market segment
- health/nutritional values.

This activity will be closely aligned with activity 2.1 which will identify opportunities in current markets and potential new markets. It will initially be across all summerfruit, although there may be subsequent focus depending on results. The consumer and market information from this activity will feed into activity 4.2 and enable better targeting of attributes in new cultivars.

New Zealand's love affair with summerfruit is still strong. With continual improvement, that loyalty and commitment from consumers will only grow and grow.

NZ Market reporter, Summerfruit NZ

Activity 1.2 New market segments

As results become available from activity 1.1, we will identify key high return market segments that may be outside current target markets. New Zealand and target Asian countries, both current and proposed new ones, will be researched. The aim is to move marketing of New Zealand summerfruit from broad spectrum to target audiences. For instance, there is potential for a market segment specific to health/nutritional benefits to exploit attributes such as the high levels of anthocyanins found in Central Otago cherries.[3]

Activity 1.3 Fruit acceptance

The right varieties for the right markets is key. We will determine the consumer acceptance and weighting of sensory, visual, cosmetic and fruit size attributes in the new market segments identified. We will also investigate attitudes to the health/nutritional benefits of summerfruit.

This activity will initially focus on consumer trials of apricots and nectarines/peaches in new markets. This activity will closely align with the development of new varieties in project 4.

[3] *Otago University study*

Activity 1.4 Purchasing channels

This activity will investigate emerging purchasing channels and the impact or opportunities they create compared to current channels. There is a particular opportunity to investigate online sales models. This will also require close interaction with the activities in project 3 Innovative packaging, packing and transport systems.

Activity 1.5 Packaging requirements

This activity will identify packaging and presentation requirements specific to the consumers and market segments identified in the other activities. Transformation of packing practices to meet retail ready, one-touch packaging for delivery to target segments warrants investigation. Furthermore, the industry is conscious of the need to understand better and meet the requirements among consumers for ecological packaging. Delivering these requirements will require close interaction with the packaging activities in project 3.

Activity 1.6 Investigate the potential for development of nutraceutical-based products

This activity will investigate the nutraceutical composition of summerfruit that are closely aligned with consumer requirements. Product development will be undertaken as appropriate and trials in model systems will be assessed for feasibility.

A deep understanding of these attributes will also enable targeted promotion of fresh summerfruit to health-conscious consumers.

The activities outlined above are interactive and iterative for the duration of the PGP and interact strongly. Stop/go points are noted where relevant in the programme work plan (Appendix 5.1). Stop/go points are used where an activity has been carried out and information obtained, and a decision needs to be made about direction and the use of significant resources, eg for an industry trial.

A re-estimate point has also been built into projects 1 and 2 after three years so that the projected export volumes and values can be re-forecast, and modified outcomes developed as appropriate as more information is known.

3.2.3 Outputs

- In-depth consumer analysis for the five summerfruit in a wider range of markets.
- Priority list of markets/summerfruit in Asia.
- New market segments and their attributes for specific countries.
- Information to determine how to focus on health/nutritional benefits.
- Greater understanding of consumers in New Zealand.
- Nutraceutical potential of high ranking summerfruit.

3.2.4 Timelines and budget

Project 1 Understanding consumers

Activities	Milestones	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
1.1	**Demographics**							
1.1.1	Consumer studies in NZ market	✓	✓	✓		✓		✓
1.1.2	Consumer studies in current export markets		✓	✓	✓		✓	
1.1.3	Consumer studies in new export markets		✓	✓	✓		✓	
1.2	**New market segments**							
1.3.1	Investigate new high return markets in NZ		✓	✓	✓			
1.3.2	Investigate new high return markets in current export markets		✓	✓	✓			
1.3.3	Investigate new high return markets in new export markets		✓	✓	✓		✓	
1.3	**Fruit acceptance**							
1.2.1	Consumer trials with fruit in NZ		✓	✓	✓			
1.2.2	Consumer trials with apricots in four countries			✓	✓	✓		
1.2.3	Consumer trials with peaches and nectarines in three countries			✓	✓	✓		
1.4	**Purchasing channels**							
1.4.1	Assessment of new purchasing channels in NZ		✓	✓	✓			
1.4.2	Assessment of new purchasing channels in export markets		✓	✓	✓	✓	✓	
1.4.3	Trialling new channels in two markets with two summerfruit types				✓	✓	✓	✓
1.4.4	Adoption of industry-wide direct to consumer sales				✓	✓	✓	✓
1.5	**Packaging requirements**							
1.5.1	Study on consumer packaging in NZ for all summerfruit	✓	✓					
1.5.2	Packaging preferences in preferred export markets and summerfruit	✓	✓	✓		✓		✓
1.5.3	Consumer responses to new packaging in NZ		✓	✓			✓	
1.5.4	Consumer responses to new packaging in export markets		✓	✓	✓		✓	
1.6	**Nutraceutical potential**							
1.6.1	Study on nutraceutical composition relevant to consumers' health perceptions	✓	✓					
1.6.2	Trials on efficacy commenced		✓	✓				
1.6.3	Product development			✓	✓	✓		
	Budget (000)	$617	$759	$862	$352	$358	$370	$382
			Total overall budget (000)					$3,700

3.3 Project 2 New market development

This project will work closely with summerfruit exporters and with project 1 to ensure market development activities align with the information on consumers and the priority list of markets.

- It will include both the Asian and wider markets for export and the New Zealand markets. For the New Zealand market there is still substantial opportunity to increase sales and consumption with consistent focus on quality.
- There will be a focus on China as an emerging market and particularly for apricots, which will require substantial development.
- There will also be work on improving access to existing markets in Asia to ensure we are exploiting all opportunities, eg Hong Kong, Singapore, Thailand, Taiwan.
- There will be a focus on competitor analysis for a comprehensive and long-term understanding of how competitors are responding to New Zealand products and the implications for the industry.

The likely expansion into existing markets and entrance into new markets for each summerfruit is discussed in detail in section 4.2.3 and modelled in the Projections 2035 spreadsheet used for potential industry growth.

Asia is expected to grow by around 5.5% this year, accounting for nearly two-thirds of global growth, and the region remains the world's most dynamic by a considerable margin.

Regional Economic Outlook: Asia Pacific, IMF, May 2018

3.3.1 Objective

To ensure market development activities align with long-term market demand.

3.3.2 Activities

Activity 2.1 Market requirements and conditions

In this activity we will analyse market requirements and conditions for:

- current markets and access to ensure we are exploiting all opportunities in high value markets, eg Hong Kong, Singapore, Thailand, Taiwan
- potential new markets such as apricots for China, which will require substantial development.

New market opportunities that are identified will be prioritised for development.

Activity 2.2 Competitor analysis

Competition for New Zealand cherry exports has largely been from Tasmania and Chile. New Zealand's focus on quality has enabled it to maintain a leading role to date. It is essential to avoid commoditising the product as volumes build. Focus on quality is New Zealand's defining position worldwide in the face of larger competitors.

In this activity we will develop a full understanding of competitors, including their production systems, in the identified countries, markets and fruits. This is with a view to developing strategies to maintain New Zealand's leading position. For instance, the Chinese New Year festival is a significant market for New Zealand in terms of market pull and value, and being able to sustainably meet this market with high value product is key.

Activity 2.3 Strategies for new markets

In this activity we will identify strategies for new markets, both in Asia and New Zealand. We will identify opportunities to exploit unsupplied or underdeveloped markets.

The strategies will take into account factors such as:

- emerging market channels
- new post-harvest technologies.

For the New Zealand market, there is still substantial opportunity to increase sales with consistent reliable quality and continued development of relationships with retailers/supermarkets.

Activity 2.4 Opening new markets

An important part of this proposal is opening new markets, ie new countries as well as new target markets in existing countries. It has been a benefit to the industry to have a successful free trade agreement in place and the reduction in tariff for Korea.

The industry has a strong history around market access activity. We will prioritise the opening of new markets for specific fruits. This will be informed by the time frames for access. We will work closely with government departments such as MPI and MFAT to develop the industry data to support market access prioritisation. A focus of this activity is the market trials that will be carried out. Some of these will involve new varieties developed in project 4.

All market activities will be carried out in close cooperation with exporters and the SEC.

Activity 2.5 Traceability systems

We will develop systems to prove the origin and traceability of the products, because the New Zealand provenance of the fruit, its quality and environmental sustainability, is important. We will identify general requirements for traceability in the major markets, and any specific requirements for promoting the provenance to consumers. New systems will be trialled in industry.

Activity 2.6 Emerging market channels

In this activity we will respond to changing requirements of emerging marketing channels, eg online sales direct to consumers. This is a significant activity that will occur over multiple years. Initially the focus will be on cherries but will extend to the other fruit also. This activity will be closely aligned with activities in project 1, relating to understanding consumer behaviour, attitudes to packaging and purchasing channels and project 3, the delivery of packaging that meets the requirements of the market channel.

The activities outlined above are interactive and iterative for the duration of the PGP and interact strongly. Stop/go points are noted where relevant in the programme work plan (Appendix 5.1). Stop/go points are used where an activity has been carried out and information obtained, and a decision needs to be made about direction and the use of significant resources, eg for an industry trial.

A re-estimate point has also been built into projects 1 and 2 after three years so that the projected export volumes and values can be re-forecast, and modified outcomes developed as appropriate as more information is known.

3.3.3 Outputs

- List of target markets for specific fruits along with plans for exploiting these markets.
- Market penetration is achieved in these target markets.
- New Zealand market further developed.
- Market development occurs.
- Traceability enables market development.
- Emerging market channels are well understood and used.
- New sales models.
- Analysis of competitors' value propositions in selected markets.
- New differentiated markets opened.

3.3.4 Timelines and budget

Project ❷ New market development

Activities	Milestones	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
2.1	**Market requirements and conditions**							
2.1.1	Review current markets for further opportunities	✓	✓					
2.1.2	Identify potential new markets		✓	✓				
2.1.3	Prioritise new markets		✓	✓				
2.2	**Competitor analysis**							
2.2.1	Identification of competitors in priority markets and fruits for analysis	✓	✓					
2.2.2	Full competitor analysis and production systems	✓	✓					
2.3	**Strategies for new markets**							
2.3.1	Strategies for NZ markets/fruits		✓	✓				
2.3.2	Strategies for export markets/fruits		✓	✓				
2.4	**Opening new markets**							
2.4.1	Market access issues identified	✓	✓					
2.4.2	Market trials			✓	✓	✓	✓	
2.5	**Traceability systems**							
2.5.1	Identify requirements for traceability		✓					
2.5.2	Trial new systems			✓	✓			
2.6	**Emerging market channels**							
2.6.1	Assess potential and requirements of new market channels	✓	✓					
2.6.2	Develop industry plan for new market channels		✓	✓	✓			
2.6.3	Industry trials			✓	✓		✓	✓
	Budget (000)	$248	$222	$111	$112	$114	$118	$125
			Total overall budget (000)					$1,050

3.4 Project 3 Innovative packaging, packing, transport solutions

This project will look across the supply chain and create the options needed for transporting the fruit to the target markets and market segments. It will push current understanding of packaging, packing and freight logistics well beyond current thinking. The focus on innovation and investment in these areas will project the industry ahead of our competitors.

- Large volumes of fruit will need to be moved from the tree to the consumer with velocity, mostly by air freight, and in such a way that fruit is of unrelenting and unquestioned quality.
- New market channels are likely to have significantly different requirements around how fruit is received. Alongside this, modern consumers no longer want wasteful unsustainable packaging. Traditional packaging will not meet the criteria.
- One-touch packing systems that minimise the handling of delicate fruit between packhouse and consumer and protects fruit quality are needed. The logistics of implementing such systems will need to be investigated.
- Competition for freight space out of New Zealand is considerable, furthermore freight space is charged on volume not weight. Therefore, packaging that can maximise the space within cartons while retaining freshness of the products is essential to maximise limited freight space.

This future state requires substantial innovation in the packaging, packing and transport systems. However, notwithstanding this, sea freight will also be important as greater volumes are produced.

This project will be embedded in the industry. The programme partners identified in section 2.4 will be central to achieving this project. Industry trials are a key part.

3.4.1 Objective

To ensure that fruit can be moved from the tree to the consumer with:

- velocity by air freight and in such a way that fruit is of unrelenting and unquestioned quality
- maximum efficiency
- the consumers' needs in mind.

3.4.2 Activities

Activity 3.1 Transport and logistics systems

In this activity we will analyse current industry practices and develop an understanding of the future options for best use of air and sea freight to handle projected increases in crop volume, to the highest quality and to a range of countries. Industry trials will be carried out to optimise new systems.

Activity 3.2 Innovative packaging

In this activity we will access the knowledge generated from wider consumer studies in activity 1.5 and carry out design and trial studies on:

- innovative packaging for direct to consumer marketing
- reduction of wasted space to maximise available freight options
- sustainable packaging.

New packaging will be designed, in tandem with the work in activity 3.3 below. Large scale industry trials will be carried out in cooperation with programme partners.

Activity 3.3 Innovative packing systems

In this activity we will focus on analysing the requirements and the development of innovative handling and packaging technologies. The following will need to be considered.

- New high performance orchards have trees that are smaller and in configurations that are more amenable to robotics, thus speeding up orchard activities. This will change the dynamics between orchard and packhouse.
- Robotic systems in packhouses. The pressures of greater fruit volumes and labour pressure make robotic systems more economically feasible. New systems will be designed, and industry trials carried out.
- The viability of one-touch packing systems designed specifically to minimise handling of the fruit in the market and promote quality will be investigated.

Activity 3.4 In market logistics systems

The investment in activity 3.3 will need a corresponding investment into the logistics in our key markets. In this work we will develop an understanding of internal systems and limitations within markets for prioritised markets and fruits. The emergence of new market channels is changing the way fruit is handled and how it reaches the consumer. In particular, the shift from shopping at the traditional wet markets to online shopping, is a major shift in Asia. Rapid and direct delivery of fresh fruit to the consumer within hours of ordering, puts new demands on those supplying these markets. Having a clear understanding of the implications of these changes in the supply chains will be essential for all exporters.

In market analysis of priority markets will be conducted. New systems will be designed, and industry trials carried out. Exporters, packhouses and freight forwarders will be involved in the trials and analysis.

The activities outlined above are interactive and iterative for the duration of the PGP and interact strongly. Stop/go points are noted where relevant in the programme work plan (Appendix 5.1). Stop/go points are used where an activity has been carried out and information obtained, and a decision needs to be made about direction and the use of significant resources, eg for an industry trial.

3.4.3 Outputs

- Leading innovations in transport, packaging and packing.
- Investment into development of sustainable packaging that maximises freight space.
- Industry adoption trials and practices.
- Smart consumer ready packaging developed.
- Key information on changes in supply chain logistics shared.
- Direct delivery of high volumes of high quality fruit delivered to new markets and consumers with velocity.

3.4.4 Timelines and budget

Project 3 Innovative packaging, packing, transport solutions

Activities	Milestones	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
3.1	**Transport and logistics systems**							
3.1.1	Current industry practices and gap analysis	✓	✓					
3.1.2	Option analysis for logistics to range of countries		✓	✓				
3.1.3	Trials for optimising new systems			✓	✓	✓	✓	✓
3.2	**Innovative packaging**							
3.2.1	Study of consumer requirements	✓	✓					
3.2.2	New systems design		✓	✓				
3.2.3	Industry trials			✓	✓	✓	✓	✓
3.3	**Innovative packing systems**							
3.3.1	Current industry practices and gap analysis	✓	✓					
3.3.2	New systems design		✓	✓				
3.3.3	Industry trials			✓	✓	✓	✓	✓
3.4	**In market logistics systems**							
3.4.1	Study of in market systems for prioritised markets and fruits	✓	✓	✓				
3.4.2	New systems design		✓	✓				
3.4.3	Industry trials			✓	✓	✓	✓	✓
	Budget (000)	$255	$322	$473	$649	$585	$598	$617
			Total overall budget (000)					$3,500

Note: Due to rounding, these numbers may not add up precisely to the total provided.

Germany: ‘Younger generation prefers ecological packaging’

Today sustainability, a rural appeal and of course appearance are the most important requirements in the food sector. This does not only apply to the products, but also to their packaging.

Landpack GmbH

3.5 Project 4 High performance orchards and improved genetic material

This project will investigate and optimise the practices needed to produce consistent, high yields and quality. Plant selections that were developed under a former Plant & Food Research/Summerfruit NZ joint breeding programme, will now be commercially evaluated. Consequently, there is a close inter-relationship between project 4 and projects 1-3.

3.5.1 Objective

To provide:

- proven practices to maximise fruit yields and land use
- production of fruit with consistent quality irrespective of distance to market
- environmentally sustainable production systems that maximise water use and minimise reliance on agrichemicals
- successful varieties for commercial production.

> What we're trying to do is convert a Morris Minor to something close to a Beemer or Ferrari.
>
> Stuart Tustin, Plant & Food Research

3.5.2 Activities

Activity 4.1 High performance growing systems

The activity will develop high performance growing systems to result in a paradigm shift in maximising consistent yields and quality. These changes will be widespread and will result in significant changes in the way the industry operates.

There will be a change of production techniques on all fruit types (not just cherries), throughout the country.

High performance growing systems have significant economic benefit and provide for:

- more uniform light penetration to the fruit
- rapid pruning and tree management
- improved pollination
- more consistent ripening
- improved pest and disease management
- significant improvement in crop forecasting techniques
- feasibility of strip picking
- the groundwork for future robotic harvesting options.

The improved harvesting options will manage future situations where harvest labour may be constrained. The systems will also be designed to help combat the impacts of inclement weather which have previously constrained production and given rise to undesirable year to year variations on fruit quality.

Activity 4.2 Bringing forward genetic material

New varieties underpin growth of New Zealand's most successful fruit sectors, eg kiwifruit, pipfruit. They actively pursue sustainable profits from the new cultivars.

In this PGP, a number of plant selections of apricots, plums, peaches and nectarines, are now available for full commercial evaluation and development as appropriate. An agreement was developed between Summerfruit NZ and Plant & Food Research to license and commercialise selections arising from the former breeding programme for the benefit of the New Zealand industry.[4] Apricot Co, a grower-owned cooperative, will be the vehicle for commercialisation of the selections.

[4] *Summerfruit Evaluation and Commercial Development Agreement. Signed 2017*

The features of this commercial model are:

- Plant & Food Research owns the PVR and will collect the royalty from growers
- Summerfruit NZ will receive 50% royalties (after collection of administration costs)
- Apricot Co will manage the development and release of the plant material
- IP is retained and protected for New Zealand.

Apricot Co is in the final stages of development. Legal agreements confirming the supply of the cultivars to Apricot Co are in development. The activities of Apricot Co, while outside of this PGP proposal, underpin the programme.

This activity will focus on:

- bringing forward new genetic material to better meet market requirements, eg apricots and red flesh nectarines, peaches and plums. A number of flavourful apricot varieties specifically targeted at the Asian markets, will be evaluated in 2019.
- assessing the characteristics of those varieties selected for commercial release, eg low chill varieties that could be grown in a wider range of regions in New Zealand
- identifying the further product development closely linked to storage and handling.

Activity 4.3 Sustainable control of pests and diseases

This activity delivers on the ongoing process to develop systems for sustainable control of damaging pests and diseases. Sensitivity to agrichemical use by today's consumers and demands for increases in sustainable practices continue to increase year on year. Earlier investment in SummerGreen, the industry Integrated Pest Management programme, has underpinned an existing proactive approach to reduction of agrichemical use. However, the industry needs to stay abreast of changing technologies in pest management.

The integrity of the product has always been paramount. However, it is recognised that consumers are increasing their demands for sustainability in this area. Due to the high level of exposure by social media there are greater costs if the industry fails to meet these demands.

The activity covers the following:

- a systems approach to efficient control through better knowledge and management of:
  - pest biology
  - environmental factors
  - tree management
  - disease prediction models
- pursuit of new benign and soft compounds while reducing reliance wherever possible on agrichemicals.

Note: Summerfruit NZ is one of the 30 industry groups that sit under Horticulture NZ, a partner organisation in the Future Crop Protection PGP. There is no doubling up of the work above and any work in the latter PGP.

Activity 4.4 Consistent fruit set

In this activity we will focus on the management of fruit set factors including pollination to maximise consistent production. Consistent reliable pollination is essential if the projected increase in volumes are to occur. Recent research into alternative pollinators highlights the potential for a shift away from a reliance on honey bees. Combined with the requirements of the new high performance production systems, novel pollination systems may be developed. These will maximise consistent fruit set and crop load levels.

The activities outlined above are interactive and iterative for the duration of the PGP and interact strongly. Stop/go points are noted where relevant in the programme work plan (Appendix 5.1). Stop/go points are used where an activity has been carried out and information obtained, and a decision needs to be made about direction and the use of significant resources, eg for an industry trial.

3.5.3 Outputs

- Development and marketing of new varieties delivering consistent consumer appeal.
- High performance production systems.
- Development of production models and analysis tools that generate production efficiencies, consistency and yields.
- Increased returns per hectare.
- Consistent and reliable fruit set.
- Increased hectares planted and new plantings using new systems = increased volumes within five years.
- Reduced agrichemical use or alternatives identified.

3.5.4 Timelines and budget

Project 4 High performance orchards and improved genetic material

Activities	Milestones	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
4.1	**High performance growing systems**							
4.1.1	Production prediction models developed	✓	✓					
4.1.2	High performance growing systems developed		✓	✓	✓	✓	✓	✓
4.1.3	Advisory expert support		✓	✓	✓	✓	✓	✓
4.2	**Bringing forward genetic material**							
4.2.1	Evaluation of advanced selections	✓	✓	✓	✓	✓	✓	✓
4.2.2	Commercialisation potential identified	✓	✓	✓	✓	✓	✓	✓
4.2.3	Tree health and form evaluated	✓	✓	✓	✓	✓	✓	✓
4.2.4	Consumer sensory evaluation	✓	✓	✓	✓	✓	✓	✓
4.3	**Sustainable control of pests and diseases**							
4.3.1	Improved knowledge		✓	✓	✓	✓		
4.3.2	Improved efficiency		✓	✓	✓	✓		
4.3.3	Reduced reliance on agrichemicals		✓	✓	✓	✓		
4.3.4	Inoculum quantification				✓	✓	✓	✓
4.3.5	Disease and prediction models			✓	✓	✓	✓	✓
4.3.6	Phytosanitary risks		✓	✓	✓	✓	✓	✓
4.3.7	Post harvest control	✓	✓	✓	✓	✓	✓	✓
4.3.8	Benchmarking agrichemical use	✓	✓	✓	✓	✓	✓	✓
4.4	**Consistent fruit set**							
4.4.1	Honeybee performance	✓	✓	✓	✓	✓	✓	✓
4.4.2	Hive optimisation	✓	✓	✓	✓	✓	✓	✓
4.4.3	New pollinators	✓	✓	✓	✓	✓	✓	✓
	Budget (000)	$590	$647	$660	$805	$955	$988	$1,021
			Total overall budget (000)					$5,667

Note: Due to rounding, these numbers may not add up precisely to the total provided.

3.6 Project 5 Industry development

Value is created all along the supply chain, from innovation in market access, on orchard production systems, transferable technologies and improved genetic material – innovation can come from all of these. Achieving the target of moving fruit with velocity will challenge the industry's current practices on every level. The industry will develop industry models and systems which collect and share data, insights and benchmarking. They will use effective extension programmes to enable rapid uptake of innovation to increase by almost threefold its value by 2035, compared to BAU.

This project: Industry development, underpins all of the other projects.

This project will:

- improve the quality of information utilised in strategic decisions
- take into account the varying lead times, pricing parameters, and sequencing needs of all five summerfruit crops
- build industry awareness, understanding, and commitment necessary for effective implementation of the strategy
- decrease the uncertainty surrounding such decisions by allowing for interactive learning between stakeholders
- improve the quality of the strategic analysis and choices by involving those people closest to the situation.

3.6.1 Objective

To ensure the industry is equipped with models and practices to meet the challenge to increase by almost threefold its value by 2035, compared to BAU.

If you fail to plan, you are planning to fail.

Benjamin Franklin

3.6.2 Activities

Activity 5.1 Information management

In this activity we will develop innovative systems to collect and provide rapid, up-to-date information to growers and all parts of the supply chain. Industry expectations are higher about how information is delivered (both consumers and growers). Consumers are mobile savvy and reliant.

We will ensure that:

- innovation is not trapped in silos
- growth is based on shared information
- there will be the development and effective implementation of tools to disseminate the outcomes of research beyond traditional communication outlets
- establish a positive social media presence to communicate with consumers, ensuring that information is accurate and maintained
- there will be development of resources and educational tools to assist in the promotion of summerfruit.

Activity 5.2 Crop forecasting and labour requirement modelling

If information is key, then being able to accurately determine the size of the annual crop is essential to market development. This is difficult in many horticultural crops however the move to high performance systems greatly improves the ability to forecast the annual crop and potentially beyond that.

Accurate information on crop volumes will also enable the industry to better manage its labour requirements. This is important as access to labour is becoming more difficult. Current pressures are expected to increase as the industry and other sectors (kiwifruit, pipfruit, wine), also increase in size and require more harvest staff. Government is understandably unsympathetic to requests for bringing in more people under the Recognised Seasonal Employment (RSE) scheme, when the industry has failed to plan for such growth.

Improved crop forecasting will also enable more reliable investment in infrastructure such as new packhouses.

In this activity we will develop systems for reliable crop forecasting. The industry has not previously developed crop forecasting. It is anticipated that the new high performance planting systems will be more amenable to imaging technology. Industry trials will be carried out.

There will be:

- new models and systems for orchard imaging
- new models of crop forecasting
- crop forecasting achieved to within 10% of final outputs
- more effective planning across the industry for crop management including labour needs.

Activity 5.3 Benchmarking

In this activity we will develop interactive systems to enable growers to benchmark and compare performance. By this the industry will build on the top 10% of current practice and leave old systems behind.

Collective use of data will lead to the upskilling of growers:

- new skills along the entire chain
- labour and employment opportunities (attracting the right people, keeping them)
- improved training/tech transfer
- the consumer – establishing a relationship
- regional development and sustainability.

Benchmarking creates pockets of commitment around particular innovation processes. In some situations, some industry participants may wish to take higher risks (with consequent higher returns, relative to others, if successful). It is important to ensure that there is a facility to create these 'clubs of interest' through Summerfruit NZ.

Activity 5.4 New investment

In this activity we will prepare financial production models to encourage new investment. The models will cover land and orchard costs, capex and packhouse costs, and labour related costs such as accommodation for seasonal labour. The models will be actively disseminated throughout the industry.

New production can come from anywhere in New Zealand, but particular focus will be on Hawkes Bay and Central Otago.

Activity 5.5 New technology uptake

Increased uptake rates of new technology are critical to meeting targets. A better understanding of how technology is used by industry participants, and how they go about adopting technology, is crucial for industry success. For instance, it is essential to ensure that new varieties are picked up and are quickly in production. New skills will be required for the widespread adoption of high performance planting systems.

The purpose of the approach is to:

- be proactive about prompting innovative action
- demonstrate where innovation is successful (from whatever part of the marketing chain)
- disseminate successful innovation as fast as practicable
- provide the information to industry in multiple formats to improve implementation and rapid uptake.

The activities outlined above are interactive and iterative for the duration of the PGP and interact strongly. Stop/go points are noted where relevant in the programme work plan (Appendix 5.1). Stop/go points are used where an activity has been carried out and information obtained, and a decision needs to be made about direction and the use of significant resources, eg for an industry trial.

3.6.3 Outputs

- Information will be available to those who need it, when they need it, how they need it.
- Best practice guidelines developed across the supply chain.
- New interactive industry systems for data management and benchmarking.
- Innovative and informed industry.
- Increased returns for grower, packer and exporter.

3.6.4 Timelines and budget

Project 5 Industry development

Activities	Milestones	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
5.1	**Information management**							
5.1.1	Assess/survey information needs in industry	✓	✓					
5.1.2	Design and trial new IT tools and systems		✓	✓	✓	✓		
5.1.3	Design generic promotional material			✓	✓	✓		
5.2	**Crop forecasting and labour requirement modelling**							
5.2.1	Review current systems	✓	✓					
5.2.2	Design new options for current and high performance systems		✓	✓				
5.2.3	Trial new options			✓	✓		✓	✓
5.3	**Benchmarking**							
5.3.1	Review current summerfruit systems and other crops	✓	✓					
5.3.2	Design and trial new processes and IT systems		✓	✓	✓			
5.3.3	Develop clubs of interest			✓	✓	✓	✓	✓
5.4	**New investment**							
5.4.1	Integrate impacts of all new systems		✓	✓	✓	✓		
5.4.2	Analysis of information needs for new investment			✓	✓	✓	✓	
5.4.3	Design prospectus and financial models				✓	✓	✓	
5.4.4	Develop support programme for new investment					✓	✓	✓
5.5	**New technology uptake**							
5.5.1	Review current industry adoption rates and identify gaps	✓	✓					
5.5.2	Design enhanced models for better adoption		✓	✓				
5.5.3	Trial new models for enhanced adoption			✓	✓	✓	✓	✓
	Budget (000)	$346	$381	$390	$395	$400	$409	$427
			Total overall budget (000)					$2,750

Note: Due to rounding, these numbers may not add up precisely to the total provided.

3.7 Programme budget

As part of the programme management, a process will be established to record and track in-kind costs by 31 August 2019. This process will include confirming the assignment of costs to people projected in section 4.5.2 so that greater transparency and accountability is assured.

	Total costs (000) ex GST							
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
Co-investor cash								
❶ Understanding consumers	$201	$276	$281	$115	$117	$121	$125	$1,235
❷ New market development	$251	$111	$113	$115	$117	$121	$125	$951
❸ Innovative packaging, packing, transport solutions	$151	$276	$281	$401	$350	$362	$374	$2,195
❹ High performance orchards and improved genetic material	$251	$276	$281	$344	$408	$422	$436	$2,419
❺ Industry development	$151	$166	$169	$172	$175	$181	$187	$1,200
Total	**$1,006**	**$1,106**	**$1,126**	**$1,146**	**$1,166**	**$1,206**	**$1,246**	**$8,000**
Co-investor in-kind								
❶ Understanding consumers	$50	$55	$70	$29	$29	$30	$31	$295
❷ New market development	$63	$83	$28	$29	$29	$30	$31	$293
❸ Innovative packaging, packing, transport solutions	$38	$28	$70	$100	$87	$90	$93	$507
❹ High performance orchards and improved genetic material	$63	$69	$70	$86	$102	$106	$109	$605
❺ Industry development	$38	$41	$42	$43	$44	$45	$47	$300
Total	**$251**	**$276**	**$281**	**$286**	**$291**	**$301**	**$311**	**$2,000**
PGP contribution								
❶ Understanding consumers	$168	$184	$235	$95	$97	$100	$104	$983
❷ New market development	$210	$276	$94	$95	$97	$100	$104	$977
❸ Innovative packaging, packing, transport solutions	$126	$92	$235	$334	$291	$301	$311	$1,691
❹ High performance orchards and improved genetic material	$210	$230	$235	$286	$340	$352	$363	$2,016
❺ Industry development	$126	$138	$141	$143	$146	$151	$156	$1,000
Total	$838	$921	$938	$955	$971	$1,005	$1,038	$6,667
Overall total	**$2,095**	**$2,304**	**$2,345**	**$2,387**	**$2,429**	**$2,512**	**$2,595**	**$16,667**

Note: Due to rounding, these numbers may not add up precisely to the total provided.

3.8 Management and governance

Summerfruit NZ will be the contracting party. A programme steering group (PSG) will be engaged. Table 2 below outlines the likely team.

Table 2. Programme steering group and governance

Role	Person(s)	Relevant experience
Chair (independent)	To be decided	Independent
Summerfruit NZ director	Chairman, Summerfruit NZ *Currently Tim Jones*	Represents growers
Summerfruit NZ director	Chairman, Summerfruit Exporters Committee *Currently Dean Astill*	Represents exporters
Summerfruit NZ CE	Marie Dawkins	Deep industry experience through length of time in this role.
PGP representative x 2	To be appointed	

The names of people involved in the governance team will depend on the date that the project is approved. However, roles have been determined.

Programme management will be carried out as per Table 3 below. This structure has been chosen to achieve the following:

- engage an overall manager who also has the capability to manage project 3, since project 3 is considered to be pivotal to the programme, and with the greatest challenges
- be an efficient use of resources
- ensure that the programme is closely integrated with Summerfruit NZ activities through the use of Summerfruit NZ staff/contractors for projects 4 and 5.

Table 3. Programme management

Role	Person(s)	Relevant experience
Overall manager of the PGP project and manager project 3	To be engaged for 1.0 FTE	Need overall project management expertise and deep expertise in a field such as logistics, engineering, to provide the leadership in this pivotal project
Manager projects 1 and 2	To be engaged for 1.0 FTE	New role with deep expertise in market development and consumer research
Project 4	Summerfruit NZ R&D manager for 0.5 FTE	R&D manager has proven research experience in the relevant fields
Project 5	Summerfruit NZ staff member for 0.5 FTE	Summerfruit NZ as the industry body has deep experience in industry development. It is expected that the person for this role will have proven experience in sector development

Intellectual property management will be via the following ways.

1. Protection of new varieties via plant variety rights (PVR). Industry cooperative, Apricot Co will hold the master license for the plant material and license it to growers.

2. Publication of science in international journals. For the proposed work on potential health benefits of summerfruit, the results from the scientific and clinical trials will be published in peer-reviewed international scientific journals to establish the credibility and validity of the research so that it can be available to the industry in each market.

3. Use of good contract management. All the research will be managed by contracts with research providers, including sections on publication which mandate confidentiality agreements and assessment of IP before release through publication.

4. Sharing best practice within the industry. Summerfruit NZ works closely with its growers and levy payers to develop and share best practice orchard systems through:

   - workshops and extensions activities
   - best practice manuals
   - online tools.

3.9 Capability to deliver on the programme of work

The delivery of the programme's research and technical work will be through the structures and processes outlined in Table 4. The programme management staff who are recruited, as described in Table 3 above, will have domain knowledge as well as project management experience. It is expected that they will provide technical leadership for each of the projects as well as a project management role such as receiving reports and being responsible for the delivery of each of the projects.

Table 4. Structures and capability for programme delivery

Programme requirement	Capability for project delivery	Relevant experience
Project 1 Understanding consumers	Plant & Food Research Summerfruit export companies	New Zealand has a number of companies with deep experience in consumer research both within New Zealand and working in Asia
Project 2 New market development	Summerfruit export companies are expected to take a significant role in this project. Capability will be provided by some of their staff, as well as contractors who have worked previously with Summerfruit NZ and exporters in market development	Exporters of summerfruit are well established as an export committee under HEA and have deep experience in market development. As above, New Zealand also has many companies that have worked extensively in market development in Asia
Project 3 Innovative packaging, packing, transport solutions	Many of the companies that provide technology and equipment in New Zealand have active research teams that will be drawn upon for the project. Logistics and freight companies have also indicated strong interest in being actively involved	This is an area where expertise resides in the private sector as well as in teams such as Lincoln Ventures. Offshore countries such as USA are also a source of expertise and R&D
Project 4 High performance orchards and improved genetic material	Plant & Food Research will be the main group contracted to carry out the research	Summerfruit NZ has an extensive research programme that has largely been delivered by Plant & Food Research. There is a deep understanding of the industry and production systems. Plant & Food Research has long-standing expertise in genetic improvement, fruit pomology and orchard management
Project 5 Industry development	Look to other primary industry sectors to take advantage of their learnings. Working closely with existing with IT development providers	Summerfruit NZ has strong ties with the other New Zealand fruit and vegetable sectors. Many primary sectors in New Zealand have over the last five years developed expertise and new understandings of industry development and these will be drawn upon

In addition, an industry advisory panel will be put in place to act as a reference group for the programme steering group and the programme managers. The panel will be a mix of industry members and independent expertise.

The industry advisory panel information included names of individuals of a number of agencies who could be approached if the project was to proceed. To protect the privacy of those individuals, these details have been removed.

3.10 Ongoing delivery

The industry is integrated across the value chain in its structure and governance. This structure enables ongoing delivery. The programme of work has been designed to be embedded in the industry from its inception, with close industry involvement in all projects and in particular project 2 New market development, project 3 Innovative packaging, packing, transport solutions and project 4 High performance orchards and improved genetic material. Results from project 1 Understanding consumers, will be made available to exporters as they become available. Project 5 Industry development, will be embedded into the Summerfruit NZ executive management.

Levies

The programme funding model is that commodity levy income will be used by Summerfruit NZ to carry out the programme on behalf of the industry. However, much of the project work will be carried out within the industry itself with close involvement of exporters, packhouses and growers.

The current Summerfruit Commodity Levy Order is due to expire in 2020. At this time Summerfruit NZ does not anticipate increasing the levy rates in the 2020 referendum. As the Sensational Summerfruit programme makes an industry impact with new plantings, the levy income will grow.

The six-yearly renewal of the commodity levy ensures the need to deliver outcomes to growers. This creates a natural pressure on Summerfruit NZ to ensure that all projects deliver value and are supported by growers. If growers do not see value in this project the renewal of the levy would be in doubt. Summerfruit NZ is confident that growers will continue to support the levy.

Industry trials

Within industry trials are a feature of all projects and particularly projects 2 New market development, project 3 Innovative packaging, packing, transport solutions and project 5 Industry development. This means that projects are conducted with commercial oversight so that meaningful information and innovation can be rapidly and directly picked up by industry participants. It is expected that partnership financial contribution will be a feature of the industry trials as companies become informed of the potential for engagement. An objective achievement measure is proposed in Appendix 5.

Private investment

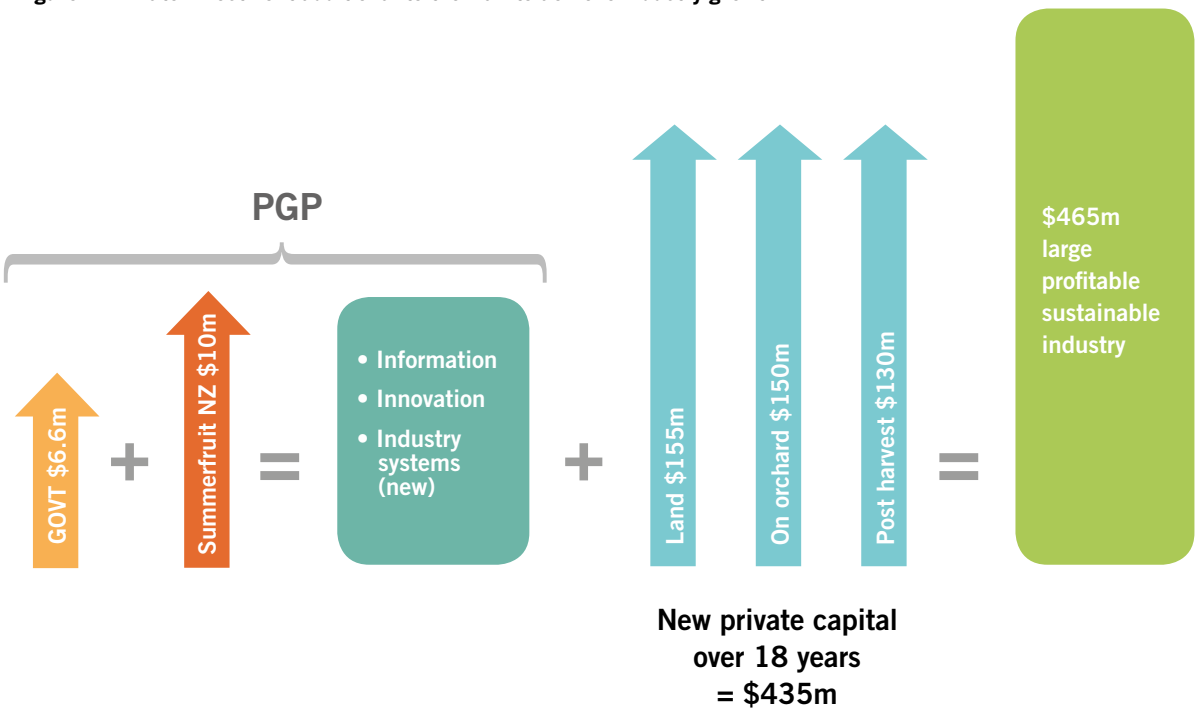
The successful outcomes of the programme will be dependent upon significant private investment by industry participants during the uptake and downstream. This is estimated to be around $280 million, particularly in orchard systems and in packhouses and new technology.

Government assistance

Government funding through this PGP programme will therefore help 'seed' the industry, to create new information, innovation and industry systems, to move to a new state and attract substantial new private capital.

Figure 4 below summarises the role of private investment capital. It is calculated that about $280 million private investment will be needed. This does not include the cost of additional land at about $155 million.

Figure 4. Private investment additional to the PGP to achieve industry growth



4 Analysis

4.1 Strategic fit

4.1.1 Summerfruit NZ – an industry-wide growth strategy

Summerfruit NZ undertook an industry-wide strategic planning process in 2015-16.[5] The main points of the strategy are noted below.

1. An industry-wide growth strategy offers the best potential for summerfruit to hit its proposed growth targets.
2. It is vital that the industry-wide growth strategy is broad enough to focus on the total marketing chain and all summerfruit.
3. The increase will require a massive increase in the production of orchards through the use of more high performance planting systems in tandem with the expansion of premium export markets (supported in some cases by the development of new fruit varieties), to ensure that the increased production increases grower returns.
4. Summerfruit NZ has a major role in developing, coordinating, and being responsible for any new initiatives that seek to improve industry growth.
5. The test for industry cooperation occurs where a project can provide long-term durable gains for industry participants: 'a rising tide raises all boats' effect.
6. The object is to develop a portfolio including post harvest, on-farm and support projects.
7. An industry-wide growth strategy maximises chances of success by:
   - developing an innovation programme which incrementally improves growth prospects
   - requiring clear feedback as projects proceed
   - developing a spread of projects (since innovation can come from anywhere)
   - careful management
   - actively seeking research partners.

This PGP programme has adopted the recommendations of the industry growth strategy and developed five projects based on the strategy.

[5] *Summerfruit Business Plan, NZIER report to Summerfruit NZ, May 2016*

4.1.2 Government agenda

The programme fits well with the government agenda and initiatives. The government's Business Growth Agenda objective is to increase exports as a percentage of GDP from 30% to 40%. In line with this goal, MPI has developed the export goal of doubling primary industry exports in real terms from $32 billion in June 2012 to over $64 billion by 2025. To achieve this, New Zealand's primary industries must grow at a rate of 5.5% per annum through to 2025.

The additional growth required to reach the 2025 goal of doubling exports will be delivered through programmes specifically targeted at the movement of products up the value chain and implementing productivity gains within natural resource constraints. This programme is consistent with the above goals. It proposes its own bold goal; an almost threefold increase in export value by 2035, compared to BAU.

4.2 Market analysis

The market drivers for this programme are based on the industries and exporters deep experience in markets, as well as the specific market research that has been commissioned and undertaken. This information is discussed further below.

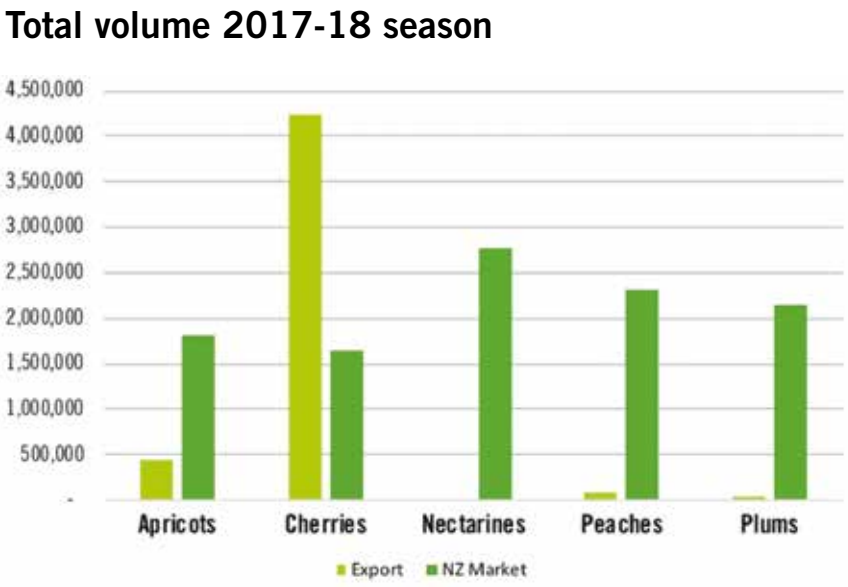
4.2.1 Market data

The summerfruit industry has been collecting data on markets since 1996, via its exporters. Currently fruit are exported to 18+ countries, in addition to New Zealand. The focus on the export vs New Zealand market differs with the specific summerfruit.

- For cherries, about 66% is exported to 15+ countries, mostly in Asia with a major focus on Taiwan, China, Vietnam and Thailand.
- About 30% of apricots are exported and mostly to Australia.
- For peaches/nectarines less than 1% are exported and this to Hong Kong and Singapore.
- Similarly, less than 1% of plums are exported, to USA with a small amount recently to China.

The situation is summarised in Figure 5 below.

Figure 5. Export of summerfruit



Detailed current market information is also provided in the Benefits model spreadsheet.

4.2.2 Market access

As export markets are developed, a significant issue for summerfruit is gaining market access to a country, for phytosanitary reasons. Fortunately, New Zealand is free from fruit fly, which is a requirement for market access to many countries. The presence of fruit fly is a barrier for export for many other countries such as mainland Australia. The current market access situation for markets is shown below (Table 6).

Table 6. New Zealand country and market access for summerfruit

Market	Country access				
	Cherries	Apricots	Plums	Nectarines	Peaches
					
Australia	✓	✓	✓	✓	✓
Canada	✓	✓	✓	✓	✓
China	✓	*	✓	✗	✗
Europe	✓	✓	✓	✓	✓
Hong Kong	✓	✓	✓	✓	✓
India	✓	✓	✓	✓	✓
Indonesia	✓	✓	✓	✓	✓
Japan	✓	✗	✗	✗	✗
Malaysia	✓	✓	✓	✓	✓
Pacific	✓	✓	✓	✓	✓
Philippines	✓	✓	✓	✓	✓
Russia	*	*	✗	✗	✗
Singapore	✓	✓	✓	✓	✓
South Korea	✓	✗	✗	✗	✗
Taiwan	✓	✓	✓	✓	✓
Thailand	✓	✓	✗	*	*
UK	✓	✓	✓	✓	✓
USA	✓	✓	✓	✓	✓
Vietnam	✓	✓	✗	✗	✗

✓ = access

✗ = no access

* = currently no access. However, discussions either initiated or in progress. Importantly MPI and importing country have agreed to handle the request.

The future market access situation is described below (Table 7).

Table 7. New market access for countries and fruit

Country	Situation
China	Application for apricots is in MPI's queue for entering into negotiation with China. Access is second in line behind blueberry access to China. However, a recent application for access to New Zealand for Chinese summerfruit could see a joint review of both applications happening simultaneously. This would speed up the access process.
Thailand	Access is under review for nectarine, peach and plum. Thailand will not review all at the same time. Thailand have agreed to review peaches and nectarines. A visit by Thai authorities is expected in the 2018-19 season. Plums will be reviewed subsequently, but will take time.
Russia	Summerfruit formerly had access, but this was closed due to a Russian review of brown rot status. An application is under discussion between MPI and Russia. This is our most active current negotiation, and there is considerable pressure from exporters to resolve this access. It may take time, but we hope to restore access first for cherries within a couple of years. We plan to have apricots considered at the same time, but this may not be possible. Peaches/nectarines are not currently being considered.
Myanmar	New market access discussions are underway.

4.2.3 Market development

The industry has commissioned market research and strategic planning for market development.

- There is an opportunity to deliver to consumers in various countries healthy fruit with the right eating experience and with quality, freshness and New Zealand provenance.
- Regular Nielsen surveys since 2009 indicate that there is still room for significant growth in the NZ market for all five fruit types. This opportunity depends on the industry fulfilling consumer demand for consistent quality and taste.

Nielsen reports	
2009	Industry review #1 Homescan report
2010	Industry review #2
2011	Shopper behaviour study 2011
2012	How do we get shoppers to buy more summerfruit?
2013	NZ summerfruit opportunities 2013
2016	Summerfruit shopper experience 2016
2017	Repeat purchasing and fruit quality 2017
2017	Measuring the amount of unripe summerfruit

- The Summerfruit Business Plan[6] identifies the main initiatives that will be required to achieve a $465 million industry by 2035.

[6] *Summerfruit Business Plan, NZIER report to Summerfruit, NZ May 2016*

What is proposed is the expansion of premium and targeted export markets and a greater New Zealand market.

- Cherries are exported mostly to Taiwan, China and SE Asia countries and in 5kg, 2kg and 1kg packs. Sales to China are increasing at an exponential rate and will soon take a significant proportion of exports. Sales to all Asian markets will be actively increased through the activities in project 1 and targeting new market segments. There is also an opportunity to move to consumer packs packed at source in New Zealand using online sales models. Such one-touch systems provide food safety confidence to Chinese consumers.
- For apricots, there has been a historic reliance on a single market, Australia. In this programme, work will be focused on building current sales in SE Asia and opening new markets, eg Taiwan, China, and also North America and Europe. Recent sensory work confirms that the new highly flavourful emerging apricot selections meet Asian palates. There is an expectation that they will largely replace existing varieties in all markets, including Australia. New releases of apricots from the same programme are due within five years, with continuing releases occurring over an extended period.
- New export markets to Taiwan, China and SE Asia will be pursued for plums. A particular opportunity may exist for the Greengage type of plum which can be grown organically.
- Currently small volumes of peaches and nectarines are exported to Taiwan and SE Asia. Exporters of peaches and nectarines consider that there is significant potential to expand in these markets and also to move into new markets such as China, North America and EU. This development is heavily aligned with outputs from high performance growing systems generating greater returns per hectare, thus making current lower returns for these fruit types more acceptable.
- The NZ market also represents a significant growth opportunity for all summerfruit.

The expansion into existing markets and the likely entrance into new markets for each summerfruit is the basis for the industry growth that is discussed in section 4.3.1 and modelled in the spreadsheet Projections 2035.

Market development will be taken forward through work in project 1 Understanding consumers and project 2 New market development.

4.2.4 Market competition

The New Zealand industry does not have its current and proposed new markets to itself. Competition for cherries is mainly from Tasmania and Chile, which like New Zealand, are free from fruit fly. Mainland Australia, which is significantly constrained by the presence of fruit fly, has recently gained access to China for all summerfruit.

Summerfruit NZ needs to move faster into proposed new markets and to penetrate more deeply the large markets of China and Taiwan. In project 2 the industry will identify strategies for new markets, particularly identifying opportunities to exploit unsupplied or underdeveloped markets.

Taste will be a key focus to ensure the success of New Zealand apricots for the future; it is an attribute that is on the top of the list of requirements for all customers. Chile, our largest competitor, currently exports few apricots and is reliant on older varieties, so giving the New Zealand industry a competitive edge with the new varieties being released for commercial development.

While New Zealand producers need to be cost effective, and the high performance orchards will enable this, they cannot compete on price alone. As the SEC has noted:[7] 'The industry needs to collectively strive to be top quality producers with a premium product to offer our ever changing and demanding customers. Our position in the market is at the higher end. We cannot afford to be anywhere else. We should not underestimate the changing environment that we work in, and how dynamic things are fast becoming.'

New Zealand's focus on quality commands a premium for the quality that we produce, and we still have some advantages with market access. These have enabled us to maintain a leading role to date. It is essential to avoid commoditising the product, particularly high value cherries.

[7] *SEC Annual Report 2016*

Some specific competitive threats follow.

- Cherries for the Chinese New Year festival. This market has been grown actively by New Zealand exporters. However, competition from Chile has put pressure on New Zealand. As one exporter noted: 'At one visit to China, while in the Guangzhou market, there were over 2,000 pallets of Chilean cherries on a given day which just highlighted how niche we really are and that value has to be our key focus driven by our quality.'
- In the footsteps of New Zealand, Chile has gained access to Korea. (New Zealand has a zero tariff for Korea after a successful FTA agreement that is now in place.)
- The offer from a number of Tasmanian exporters at prices significantly below that of New Zealand, and with a very favourable exchange rate as well as significantly lower air freight rates to key market destinations, is a huge advantage. Tasmanian producers put pressure on markets such as Singapore and Malaysia to name a few that have no phytosanitary requirements.
- The commitment from Australian retail to New Zealand apricots is the backbone of the export industry. Retailers switch to New Zealand product as Australian domestic product becomes unavailable. However, pressure for Australian consumers to 'buy local' and carry over from Australian product, provides a competitive threat. Furthermore, the heavy reliance on one market has always been of concern, undermining the stability of that market. The New Zealand industry is looking to meet this threat through widening the export market for apricots as well as recapturing the Australian market with superior tasting varieties.

4.2.5 Supply chain for summerfruit

The market development as described earlier will require changes in the supply chain. Excluding phytosanitary inspections for export which will not be affected by this project, the key elements of the current supply chain for summerfruit are:

- on orchard production
- harvesting, preparation, grading and packing in the packhouse
- freight to market
- in market retail and delivery.

Changes are anticipated in all of these.

Currently, and across the industry and fruit types, the typical supply chain is represented in Figure 6. Most production is still on individual, freestanding trees growing in an orchard grid with a tree density of 600-700/ha. Picking is by hand into bins. Lift platforms may be used in some orchards. Fruit is cooled, as required, and graded for defects and size along conveyors, with significant hand labour input. Packing into various sized boxes for transport to market is largely by hand. Fruit is taken direct to market either for export or local. Because summerfruit have a two to three weeks shelf life, storage in cool stores for extended periods, as for fruit such as apples and kiwifruit, does not occur. Some fruit such as apricots are sent by sea freight, whereas much of the cherry crop is exported by air freight, with a duration of about 72 hours.

Figure 6. Summerfruit supply chain – now and the future

Now

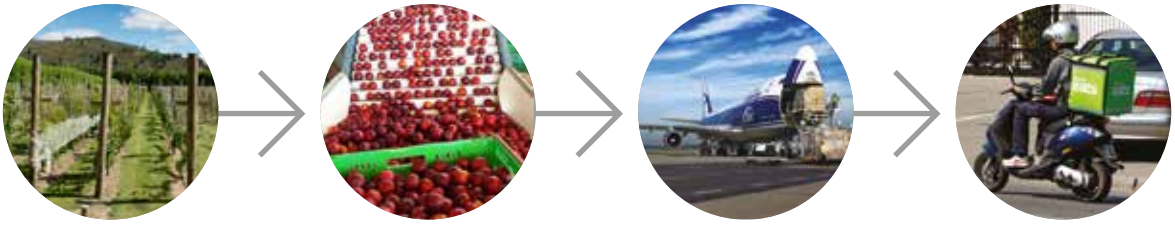
Lower performance production

Packhouse and labour

Sea freight 2-3 weeks

Wholesale market

Next



High performance production

Increasing automation

Air freight 48 hours

Customised delivery

However, Summerfruit NZ's vision is to get unrelenting and unquestioned fruit quality from the tree to the consumer with velocity for all markets and for some markets within 48 hours. Achieving this will require changes in the supply chain.

1. Move to high performance systems will occur

The basis for this is smaller trees which are trained with posts and wires to maximise upright wood. Orchards will be denser, early fruiting, higher yielding, and improved fruit quality. This is called the high performance orchard. The orchard layout will be amenable to robotics. Benefits include earlier commercial production from young trees, reduced expenditure on labour, water, fertilisers and pesticides.

For example, with cherries the new high performance production systems and widespread use of rain covers means that the protected crop will result in more rapid growth, more precision crop management and larger fruit.

2. Increasing automation in packhouses

Changes are anticipated in logistics, freight to export markets, and consumer ready packs. Innovations and new technology such as robotics to pack and transport high volumes of quality fruit will be required. Many of these may be delivered by use of robotics and novel post harvest technologies.

3. Increase in air freight

There are strong reasons for increasing the use of air freight for velocity and shortening the journey time:

- for fruit with a limited shelf life, getting fruit to market in as short a time as possible, eg 48 hours gives the benefit/flexibility of that shelf life to the market/consumer rather than using it in the supply chain
- as new types of sales models such as ecommerce are developed for summerfruit, it will be important to get the fruit quickly to the consumer in a distant market in a consumer pack.

A New Zealand 2016 study by MPI identified air freighted exports increasing nearly three times faster than sea freight over the past five years, with expectations that the trend would continue.[8] Among the key influences in making air freight more attractive was the increase in direct flights to export markets. A large proportion of air freight exports is transported in the cargo holds of passenger planes rather than dedicated cargo planes.

The number of international departures from New Zealand has increased by over 20% since 2008, and for summerfruit from Central Otago, the re-emergence of Christchurch International Airport as a transport hub helps to shorten times to Asian markets from the industry's centre in Otago. However, with larger volumes air freight space will be a premium and efficient sea freight will continue to be required.

4. New retail and sales models

Traditionally New Zealand fruit has been sent to the wholesale market in the destination country where it is often handled and repacked. With new retail sales models, fruit may be packed to order in consumer ready packs and distribution may be from warehouses, direct to consumers, by small and flexible delivery models.

The issues discussed in the market analysis form the basis of the projects that are set out in this PGP.

[8] *MPI Situation and Outlook, www.agrihq.co.nz 14 December 2016*

4.3 Benefits

4.3.1 Model for financial performance in 2035

A comprehensive model of financial performance resulting from the outcomes of the PGP has been developed. The counterfactual business as usual (BAU) scenario has also been developed.

Summerfruit NZ has a projected industry value of $465 million by 2035 from its current value in 2017-18 of $112 million. This is based on the following analysis and assumptions.

1. Growth scenario

The growth scenario is based on the following working hand in hand: new markets, new high performance production to supply the markets, innovation and new investment because of increased grower returns.

The growth scenario assumes:

- new high performance production systems which result in threefold yield increases
- adoption of high performance systems to around 70% of production
- approximately doubling of the planted area across all summerfruit because of the increased on orchard profitability
- significant new export growth for apricots, peaches, plums and nectarines
- fourfold expansion in existing export markets for cherries
- expansion of the domestic market for all summerfruit
- significant additional jobs and labour requirements
- significant private capital investment in addition to the direct PGP investment
- approximately doubling of the planted area across all summerfruit because of the increased on orchard profitability.

The industry has confirmed that there is a sufficiency of land, with water, available in Central Otago for the expansion of the industry. Land in Hawkes Bay is not as plentiful, but still available for crops with a good economic return and the new high performance systems provide for such high margins. As the industry grows, movement into other regions is also expected to occur.

2. 'Business as usual' scenario

The counterfactual scenario[9] (BAU) assumes revenue growth until 2035 to continue at 2.2% per year to a value of $162 million based on:

- some ongoing expansion of cherry exports
- no material change in exports for apricots, peaches, plums and nectarines, as no new plant selections have been/will be evaluated and commercialised
- marginal growth in domestic consumption
- no significant new investment and replacement of summerfruit orchards with high performance production systems.

These assumptions are summarised in Table 8.

[9] *The Investor's Guide to the New Zealand Produce Industry 2017, Coriolis. Part of the New Zealand Food & Beverage Information Project Final Report, v1.02, June 2017*

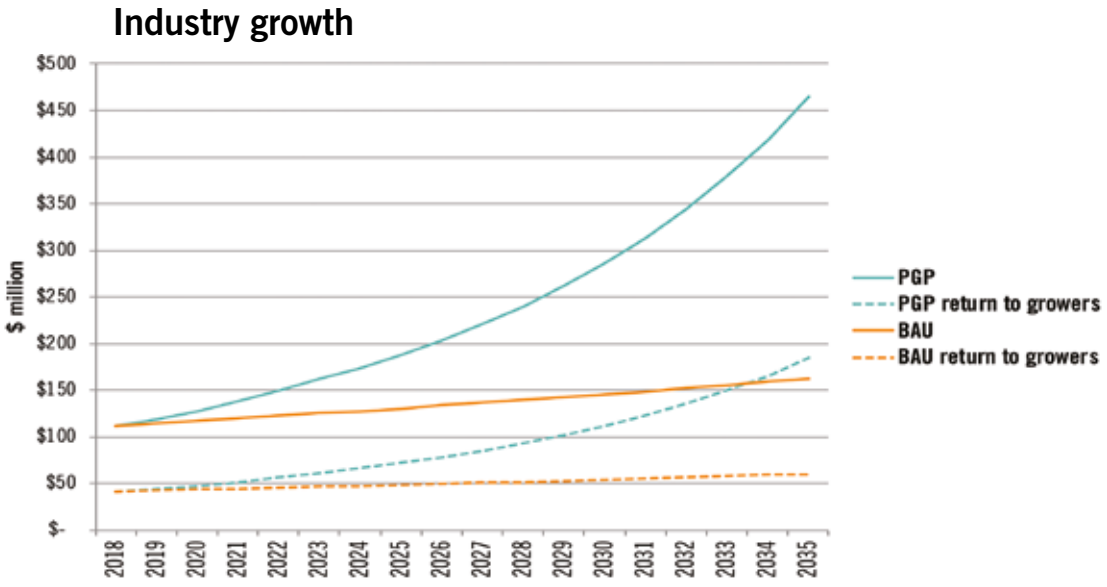
Table 8. Summary key assumptions for the economic benefits

Assumption	Future scenario	Current situation
By 2035 plantings will be	• 1,500ha cherries • 700ha apricots • 400ha plums • 700ha peaches & nectarines combined Total = 3,300ha	• 732ha cherries • 272ha apricots • 200ha plums • 544ha peaches & nectarines combined Total = 1,748ha
	Difference = 1552ha	
Orchard systems	Adoption of high performance systems to around 70% of production Considerable uptake of new rootstocks	Some cherries in high performance systems
Production systems	Yield increases X 3-4 with new high performance system	
Orchard capital costs/ha (ex land)	Cherries $103,450 Others $85,760	Cherries $82,818
Additional labour on orchard and packhouse	4,934 persons per year in summer at 2035 Accommodation costs $10,000 per person	
GDP increases by $0.50 for every $1.00 increase in exports or gross output		

Model of financial performance in 2035

The growth scenario projects that industry revenue will reach $465 million at 2035 compared to projected BAU $162 million at 2035, an almost threefold difference. This is a differential of $303 million and a net return to growers of an additional $154 million. The benefit cost ratio is 1.68. The overall financial gain to summerfruit growers from increased revenue, is shown in Figure 7.

Figure 7. Projected revenue resulting from PGP investment compared to BAU



Specific outcomes and metrics are summarised in Table 9.

Table 9. Summary of outcomes in 2035 resulting from the PGP vs BAU scenarios

Outcome/metrics	PGP scenario	BAU scenario
Export revenue by 2035	$465 million	$162 million
Orchard production	Area doubled Yield increased 3-4X	No significant change in area and yield
Grower return $/ha	**2-4 X current value** Cherries $191,360 Apricots $107,490 Plums $216,788 Peaches/nectarines $177,660	
Job creation by 2035	At 2035: 5,000 persons per year needed over the summer for on orchard and in packhouse work Additional in IT, science, engineering and other service industries	
Benefit cost ratio of PGP over BAU	1.68	

Significant private investment in summerfruit industry
The successful outcomes of the programme will be dependent upon significant private investment by industry participants during the uptake and downstream.

Table 10. Additional private capital investment by 2035

Investment type	Value
New orchard set up	$150 million
New packhouse infrastructure	$130 million
Subtotal	$280 million
Land purchase for additional area[10]	$155 million
Accommodation costs for season labour	$49 million
Total	$484 million

[10] *At estimated cost $100,000/ha*

4.3.2 Key performance indicators for the programme

Specific key performance indicators of the programme at 2025 are summarised in the Table 8 below (based on the Outcome Logic Model).

Table 8. Key performance indicators from the PGP at end of programme 2025

KPI	PGP scenario
New varieties with consistent consumer appeal	4 New apricot varieties in market 2 New peach and nectarine varieties in market 1 New plum variety in market
High performance production systems	Benefits established and change over occurring to deliver 1.5-2.0 X volume of fruit
New markets opened	Market penetration approximately 12% in existing markets and up to 25% in some new markets Between 3% and 4% market growth in NZ market New sales models
Supply chain delivers quality fruit with velocity	New packaging for direct to consumer supply New packhouse technology identified Improved logistic systems
Increased returns	Industry revenue increased 1.5 X (at 2025)
Innovative and accomplished industry	Industry transformation: • new technology and systems • industry benchmarks itself • new growers and significant capital investment Industry is more resilient and sustainable

4.3.3 Benefits to summerfruit industry

The following potential benefits are directly attributable to this programme and will accrue to the industry:

- all New Zealand summerfruit positioned as high value fruit with target consumers
- new varieties commercialised and delivering consistent consumer appeal
- innovations and new technology achieved to pack and transport high volumes of quality fruit with velocity through to the consumer
- new high performance production systems for expanded, consistent production
- increased productivity, value, and profitability in the summerfruit sector (growers, packhouses, exporters, marketers)
- potential of the NZ market maximised
- existing growers with confidence to convert or undertake new plantings
- new entrants with confidence for new investment
- export value increased by threefold to $465 million by 2035, compared to BAU
- long-term economic growth and sustainability delivered in the summerfruit sector
- process industry positioned to become viable again through growth in production and new opportunities such as processing for nutraceuticals
- an innovative industry of fast adopters and a model developed for continuing long-term profitable and sustainable growth.

4.3.4 Sustainability benefits

The 2017-18 season with its significantly increased heat units and very high temperatures was the most challenging since 1988. The shortened maturity period shortened the time in market and made high prices difficult to sustain. As a result, there is an awareness of the need for the industry to increase its resilience. This is not easy but will be assisted through a combination of the following:

- new high performance production systems that are more resistant to rain and adverse weather, and have a higher return per hectare
- demand created with consumers for the fruit that New Zealand supplies in consumer friendly ways
- production diversified into different regions
- fruit moved to market rapidly so that the remaining shelf life will benefit the consumer
- becoming an industry that is innovative and able to change and adapt.

Overall the industry will become more resilient.

Significant sustainability benefits are:

- new high performance production systems which significantly increase the yield for lower inputs of water and fertiliser
- use of more sustainable packaging
- increased industry resilience (as discussed above).

4.3.5 Benefit to research capability

Summerfruit NZ will work closely with the New Zealand R&D community in the following areas:

- innovations and new technology such as robotics to pack and transport high volumes of quality fruit
- new high performance production systems for expanded, consistent production
- new packaging learnings for other crops
- new varieties delivering consistent consumer appeal. Summerfruit NZ is co-owner of the summerfruit programme with Plant & Food Research.

4.3.6 Benefits to New Zealand

Achieving all of the above will result in significant growth of the industry and the long-term wider benefit to New Zealand. Benefits to New Zealand from the PGP at 2035 are:

- increased export returns to New Zealand
- long-term economic growth and an efficient, sustainable summerfruit industry in the regions
- additional direct private capital investment in production of $280 million cumulatively (this does not include land purchase estimated at $155 million and accommodation costs of $49 million)
- economic stability, regional growth and increased employment
- additional regional employment on orchard and in packhouse of around 1,158 persons per annum
- development of new employment opportunities in IT, science and engineering to service an increasingly technology driven industry throughout the supply chain
- expansion of international relations.

From the model for financial performance, it is projected that an addition $303 million will be generated. Based on the assumption that GDP increases by $0.50 for every $1.00 increase in exports or gross output[11] **an increase of GDP of $150 million is attributable to the outcomes of this programme.**

[11] *Economic contribution of PGP A cost-benefit analysis of potential impacts NZIER report to the Ministry for Primary Industries, May 2014*

4.3.7 Retention of benefits in New Zealand

The benefits will be retained in New Zealand because the industry is land based and owned by New Zealand producers and exporters, and the PVR for any new plant material is held by Plant & Food Research for the benefit of the industry.

4.4 Risks and mitigations

The key risks for the programme, the likely impact if realised, the likelihood of occurrence, the mitigation strategy and the weighted impact on the programme are shown in Table 11.

Table 11. Risk analysis

Risk	Likelihood	Impact	Mitigation	Residual risk
That with the breadth and complexity of the programme, projects might drift or be uncoordinated.	Medium	Because this is an integrated and co-dependent programme, the impact of this would be significant, resources would not be well spent and outcomes may not be achieved.	Strong oversight from the industry advisory panel and the Summerfruit NZ Board and the customers of the research will mitigate the chances of non-delivery. Graduated response to either return delayed or drifting projects to a re-negotiated timeline or stop the project and redeploy resources and effort to more attractive opportunities.	Low
Too much focus on one area of the value chain concentrates risk of overall failure.	Medium	Co-innovation is an essential part of the programme so the impact would be significant, some things may not be achieved and would limit the overall performance.	There is a broad innovation focus along the supply chain to expand the environment where innovation can occur and be adopted as quickly as practicable.	Low
The lead times for change in the industry are relatively long compared to the 20-year period covered by this business case.	Medium	Project 5 focuses on industry change and adoption.	The projects span the value chain from market analysis through to better ways of combatting pests and diseases, so that a range of innovations will be produced with enhanced likelihood of uptake and adoption.	Medium
Lack of capital is the main constraint on the capacity of existing growers to either adopt new growing systems or plant new varieties.	Low	Without private capital the industry would not expand.	Industry development will provide confidence to growers to be fast followers converting orchards from less profitable or shorter lived fruit crops.	Low
New entrants to the industry will find it easier to adopt new technologies but may not have the skill and experience required to achieve the full potential of the new technologies.	Medium	The industry growth planned for will not occur to the level required.	Every effort will be made to ensure that information on innovations is disseminated as quickly as possible and provided in a way that is readily taken on board.	Low
That the necessary rapid growth will not occur where there is a lack of information on which investors can make quicker decisions to invest.	High	The industry growth planned for will not occur to the level required.	Ensuring information is easily accessed and available in as many forms as possible.	Medium

4.5 Contributions

The contributions from Summerfruit NZ are derived from the commodity levy funding. The in-kind contribution, at 20%, includes exporters and growers' time and resources in the supply chain and on orchard. It also includes Summerfruit NZ executive staff and contractors.

In-kind contributions will be monitored by the programme manager.

Note: Due to rounding, these numbers may not add up precisely to the total provided.

Total across all projects

	Total costs ex GST							
Major cost components	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Total**
Co-investors' contributions: cash	$981	$1,172	$1,189	$1,097	$1,150	$1,182	$1,230	**$8,000**
Co-investors' contributions: in-kind	$249	$269	$300	$281	$291	$300	$311	**$2,000**
Co-investors' contributions: total	$1,229	$1,440	$1,489	$1,378	$1,441	$1,483	$1,540	**$10,000**
Amount sought from PGP funding	$827	$892	$1,008	$935	$972	$1,000	$1,031	**$6,666**
Total (000)	**$2,056**	**$2,332**	**$2,497**	**$2,313**	**$2,413**	**$2,483**	**$2,572**	**$16,666**

Note: There is no capital expenditure included.

4.5.1 Investment contribution by project

Investment contribution by project

	Total costs ex GST							
Major cost components	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Total**
Project 1	$617	$759	$862	$352	$358	$370	$382	**$3,700**
Project 2	$248	$222	$111	$112	$114	$118	$125	**$1,050**
Project 3	$255	$322	$473	$649	$585	$598	$617	**$3,500**
Project 4	$590	$647	$660	$805	$955	$988	$1,021	**$5,667**
Project 5	$346	$381	$390	$395	$400	$409	$427	**$2,750**
Total (000)	**$2,056**	**$2,332**	**$2,497**	**$2,313**	**$2,413**	**$2,483**	**$2,572**	**$16,666**

Project 1 Understanding consumers

	Total costs ex GST							
Major cost components	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Total**
Co-investors' contributions: cash	$296	$406	$414	$168	$171	$177	$183	$1,816
Co-investors' contributions: in-kind	$75	$82	$104	$43	$ 43	$45	$ 46	$438
Co-investors' contributions: total	$371	$488	$518	$211	$214	$222	$229	$2,254
Amount sought from PGP funding	$246	$271	$345	$140	$144	$148	$153	$1,447
Total (000)	**$617**	**$759**	**$862**	**$352**	**$358**	**$370**	**$382**	**$3,700**

Project 2 New market development

	Total costs ex GST							
Major cost components	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Total**
Co-investors' contributions: cash	$118	$52	$53	$54	$55	$57	$59	$447
Co-investors' contributions: in-kind	$30	$40	$13	$13	$14	$14	$16	$140
Co-investors' contributions: total	$148	$92	$66	$67	$68	$71	$75	$587
Amount sought from PGP funding	$100	$130	$45	$45	$46	$47	$50	$463
Total (000)	**$248**	**$222**	**$111**	**$112**	**$114**	**$118**	**$125**	**$1,050**

Project 3 Innovative packaging, packing, transport

	Total costs ex GST							
Major cost components	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Total**
Co-investors' contributions: cash	$120	$220	$222	$300	$275	$280	$294	$1,712
Co-investors' contributions: in-kind	$30	$22	$56	$81	$70	$73	$75	$407
Co-investors' contributions: total	$150	$242	$278	$381	$345	$353	$369	$2,118
Amount sought from PGP funding	$105	$80	$195	$268	$240	$245	$248	$1,381
Total (000)	**$255**	**$322**	**$473**	**$649**	**$585**	**$598**	**$617**	**$3,500**

Project 4 High performance orchards and improved genetic material

	Total costs ex GST							
Major cost components	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Total**
Co-investors' contributions: cash	$283	$311	$316	$386	$459	$474	$490	$2,719
Co-investors' contributions: in-kind	$72	$78	$80	$97	$115	$119	$123	$682
Co-investors' contributions: total	$355	$388	$396	$483	$573	$593	$613	$3,401
Amount sought from PGP funding	$236	$259	$264	$322	$382	$395	$408	$2,266
Total (000)	**$590**	**$647**	**$660**	**$805**	**$955**	**$988**	**$1,021**	**$5,667**

Project 5 Industry development

	Total costs ex GST							
Major cost components	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Total**
Co-investors' contributions: cash	$164	$182	$184	$188	$190	$194	$204	$1,306
Co-investors' contributions: in-kind	$249	$269	$300	$281	$291	$300	$311	$2,000
Co-investors' contributions: total	$206	$229	$230	$235	$240	$244	$255	$1,640
Amount sought from PGP funding	$140	$152	$160	$160	$160	$165	$172	$1,109
Total (000)	**$346**	**$381**	**$390**	**$395**	**$400**	**$409**	**$427**	**$2,750**

4.5.2 In-kind valuation

Project title	Type of in-kind contribution	Who is contributing the in-kind	How the in-kind contribution was valued/ calculated (including assumptions made)	Why in-kind is necessary (why these resources are not better obtained elsewhere)
Project 1 Understanding consumers	Project management In market information	Summerfruit NZ Exporters	Salaries and overheads of staff @$80/hour Marginal costing exporters staff @$40/hour	Requires specialist knowledge
Project 2 New market development	Project management In market information	Summerfruit NZ Exporters	Salaries and overheads of staff @$80/hour Marginal costing exporters staff @$40/hour	Requires specialist knowledge
Project 3 Innovative packaging, packing, transport solutions	Project management Industry trial support	Summerfruit NZ Packhouses	Salaries and overheads of staff @$80/hour Marginal costing exporters staff @$40/hour	Requires specialist knowledge Packhouse involvement = successful adoption of change
Project 4 High performance orchards and improved genetic material	Co-development and intervention of extension activities	Summerfruit NZ Plant & Food Research Growers	Salaries and overheads of orchard staff and extension activities	Grower involvement = successful adoption of change
Project 5 Industry development	Project management	Summerfruit NZ Growers	Salaries and overheads of staff @$80/hour and shareholder extension activities Marginal costing growers and staff @$40/hour	Grower involvement = successful adoption of change

5 Appendices

5.1 The Programme: Work plan and milestones

Programme: Outcome summary

Intermediate outcome: Key indicators of success

IO statement

Summerfruit is a portfolio of five fruits (apricots, cherries, nectarines, peaches, and plums) grown mainly in Central Otago and Hawkes Bay by 280 growers, with 35 export packhouses, 25 exporters and five mainly New Zealand wholesalers. Summerfruit NZ is the industry organisation.

Through market research and strategic planning, Summerfruit NZ has identified that there is an opportunity to deliver to consumers in export markets and New Zealand, healthy fruit with the right eating experience and with quality, freshness and New Zealand provenance. However, this is problematic because summerfruit are difficult to produce with consistent volume and quality, have a short shelf life and require packaging, and fast logistics and transport. The industry has recognised the importance of taking these market-led opportunities to drive significant new growth. Summerfruit NZ's bold goal is to get unrelenting and unquestioned quality fruit direct from the tree to the consumer with velocity.

Success will be that all New Zealand summerfruit are positioned as high value fruit with target consumers, leading to a larger, profitable and sustainable industry.

The successful delivery of this programme will be measured by the following major outcomes.

Economic

- An increase in the value of the industry to $465 million by 2035, compared to a current value of $112 million, (and a counterfactual value of $162 million at 2035) and increased financial returns for all parts of the summerfruit industry (growers, packhouses, exporters, marketers).
- Benefit to New Zealand through an increase in GDP of $150 million.

Spill-over

- The fast and successful adoption of innovation and new technology all along the value chain and particularly in packaging, packing and transport.
- Development of new employment opportunities in IT, science and engineering to service an increasingly technology driven industry throughout the supply chain.

Sustainability

- A major increase in consistent production and quality through the use of more high performance orchard systems with environmental benefits.
- Expansion of premium and targeted export markets and greater New Zealand market.

IO statement (cont)	**Key determining factors outside of the control of the programme:** • exchange rate fluctuation • market access changes • significant land use changes • adverse weather events impacting on production • biosecurity incursions.
Start date	1/03/2019
End date	31/02/2026
Leader	Programme manager

Objective

Objective: Programme management

Objective description	Effective programme management through appropriate resourcing and strategic management to ensure: timely and within budget delivery to a high standard of outcomes from the programme and contractual requirements; reliable cost accounting and financial reporting; effective management of all contracted suppliers and services; appropriate and effective communication with all stakeholders and with MPI.
Objective achievement measures	1. Programme management systems: systems and templates for forecasting and recording delivery, financial management and subcontracting are developed and communicated to programme participants by 28 February 2019. 2. Process established to record and track additional costs (in-kind) by 31 August 2019. 3. Partnership financial contributions for programme activities have been widely canvassed and MOUs developed with confirmed partners by 31 August 2019. 4. Annual plan approved by PSG by 30 June each year. 5. Variations relating to annual plan approved and incorporated into schedule 5 of the PGP contract by 31 August each year. 6. Cashflow forecast: updated year end and programme forecast approved by the PSG quarterly. 7. Reporting: reports are made on a quarterly basis to the PSG and MPI. 8. Meetings: PSG meetings are held quarterly. 9. Programme outcomes reviewed annually as part of the annual plan update process. 10. Independent Programme Reviews: two independent reviews of the programme to be held by 31 December 2022 and 31 December 2024.
Start date	1/09/2018
End date	31/08/2025
Leader	Programme manager
Linkages	Projects 1-5: Project management supports all activities

Project 1 Understanding consumers

Project description	This project will develop a sophisticated understanding of what creates high value for consumers of fresh fruit in target Asian and NZ markets in order to be able to provide the fruit the consumer wants.
Project achievement measures	1. Consumer preferences determined in target Asian and NZ markets. 2. Consumer trials for fruits in target markets. 3. New market segments identified in NZ and target markets. 4. Emerging purchasing channels are well understood and new sales models developed. 5. Consumer requirements for packaging identified. 6. Nutraceutical opportunity well defined.
Start date	1/09/2018
End date	30/08/2025
Leader	

Activity 1.1 Demographics

Activity description	In this activity we will use consumer research in both NZ and target Asian countries to carry out analysis into the purchasing preferences and habits of consumers.
Activity achievement measures	Consumer preferences determined in NZ market. Consumer preferences determined in current export markets. Consumer preferences determined in new export markets.
Start date	1/09/2018
End date	30/08/2025 ***1/08/2020 Stop: Go – PSG to evaluate progress and approve next tranche of work***
Leader	

Milestone 1.1.1

Milestone description	We will assess consumer preferences in the NZ market.
Achievement measures	Consumer preferences determined in NZ market.
Start date	1/09/2018
End date	Reporting on 1/08/2021 and 1/08/2023 and 1/08/2025
Links to other milestones	Contributes to milestones in 1.3, 1.4, 2.3, 2.4

Milestone 1.1.2

Milestone description	We will assess consumer preferences in current export markets to build demand.
Achievement measures	Consumer preferences determined in current export markets.
Start date	1/09/2019
End date	Reporting on 1/08/2022 and 1/08/2024
Links to other milestones	Contributes to milestones in 1.3, 1.4, 2.3, 2.4

Milestone 1.1.3

Milestone description	We will assess consumer preferences in new export markets to build demand.
Achievement measures	Consumer preferences determined in new export markets.
Start date	1/09/2019
End date	Reporting on 1/08/2022 and 1/08/2024
Links to other milestones	Contributes to milestones in 1.3, 1.4, 2.3, 2.4

Activity 1.2 New market segments

Activity description	In this activity we will identify key high return market segments that may be outside current target markets, eg for health benefits and nutraceuticals.
Activity achievement measures	New market segments identified.
Start date	1/09/2019
End date	1/06/2024 ***1/08/2020 Stop: Go – PSG to evaluate progress and focus on particular segments*** ***1/08/2021 Stop: Go – PSG to evaluate and further refine or open up new markets*** ***1/08/2021 Stop: Go – PSG to re-forecast projected export volumes and values and modified outcomes developed as appropriate as more information is known***
Leader	

Milestone 1.2.1

Milestone description	Investigate new high return markets in NZ.
Achievement measures	New high return market segments identified in NZ.
Start date	1/09/2019
End date	1/08/2022
Links to other milestones	Dependent on milestones in 1.1, 1.2 and 1.3 Contributes to milestones in activity 2.3

Milestone 1.2.2

Milestone description	Investigate new high return markets in current export markets.
Achievement measures	New market segments identified in current export markets.
Start date	1/09/2019
End date	1/08/2022
Links to other milestones	Dependent on milestones in 1.1, 1.2 and 1.3 Contributes to milestones in activity 2.3

Milestone 1.2.3

Milestone description	Investigate new high return markets in new export markets.
Achievement measures	New market segments identified in new export markets.
Start date	1/09/2019
End date	1/08/2024
Links to other milestones	Dependent on milestones in 1.1, 1.2 and 1.3 Contributes to milestones in activity 2.3

Activity 1.3 Fruit acceptance

Activity description	We will determine the consumer acceptance and weighting of sensory, visual, cosmetic and fruit size attributes. We will also investigate the attitudes to health/nutritional benefits of summerfruit.
Activity achievement measures	Consumer trials carried out on fruits in target markets.
Start date	1/09/2019
End date	1/08/2023 ***1/08/2020 Stop: Go – PSG to evaluate progress in NZ market*** ***1/08/2021 Stop: Go – PSG to evaluate progress in trials with apricots and confirm or change countries*** ***1/08/2021 Stop: Go – PSG to evaluate progress in trials with peaches/nectarines and confirm or change countries***
Leader	

Milestone 1.3.1

Milestone description	Consumer trials for fruits in NZ market.
Achievement measures	Fruit types identified for increased consumer satisfaction.
Start date	1/09/2019
End date	1/08/2022
Links to other milestones	Dependent on activity 4.2 Contributes to milestones in 1.2, 1.4, 2.3, 2.4

Milestone 1.3.2

Milestone description	Consumer trials with apricots in four countries.
Achievement measures	Fruit types identified for increased consumer satisfaction.
Start date	1/09/2020
End date	1/09/2023
Links to other milestones	Dependent on activity 4.2 Contributes to milestones in 1.2, 1.4, 2.3, 2.4

Milestone 1.3.3

Milestone description	Consumer trials with peaches and nectarines in three countries.
Achievement measures	Fruit types identified for increased consumer satisfaction.
Start date	1/09/2020
End date	1/09/2023
Links to other milestones	Dependent on activity 4.2 Contributes to milestones in 1.2, 1.4, 2.3, 2.4

Activity 1.4 Purchasing channels

Activity description	Investigation of the changing purchasing channels and the impact or opportunities they create.
Activity achievement measures	Emerging market channels are well understood and used. New sales models developed. ***1/08/2021 Stop: Go – PSG to assess results from purchasing channels to determine how to progress trials*** ***1/08/2023 Stop: Go – PSG to evaluate progress in trials before commencing industry wide trials***
Start date	1/09/2019
End date	1/06/2025
Leader	

Milestone 1.4.1

Milestone description	Assessment of new purchasing channels in NZ.
Achievement measures	Emerging market channels are well understood.
Start date	1/09/2019
End date	1/08/2022
Links to other milestones	Dependent on milestones in activities 1.1, 1.2 and 1.3 Contributes to activities 1.5 and 2.3

Milestone 1.4.2

Milestone description	Assessment of new purchasing channels in export markets.
Achievement measures	Emerging export market channels are well understood.
Start date	1/09/2019
End date	1/08/2024
Links to other milestones	Dependent on milestones in activities 1.1, 1.2 and 1.3 Contributes to activities 1.5 and 2.3

Milestone 1.4.3

Milestone description	Trialling new channels in two markets with two summerfruit types.
Achievement measures	New sales models developed.
Start date	1/09/2021
End date	1/08/2025
Links to other milestones	Dependent on milestones in activities 1.1, 1.2 and 1.3 Contributes to activities 1.5 and 2.3

Milestone 1.4.4

Milestone description	Adoption of industry-wide direct to consumer sales.
Achievement measures	Emerging market channels and sales models used successfully.
Start date	1/09/2021
End date	1/06/2025
Links to other milestones	Dependent on milestones in activities 1.1, 1.2 and 1.3 Contributes to activities 1.5 and 2.3

Activity 1.5 Packaging requirements

Activity description	In this activity we will work closely with the activities in project 3 (Innovative packaging, packing and transport) to identify consumer packaging and presentation requirements.
Activity achievement measures	Consumer requirements for packaging identified in NZ and range of summerfruit and in the prioritised export markets. Customer satisfaction increased.
Start date	1/09/2018
End date	1/08/2025 ***1/08/2019 Stop: Go – PSG to assess results from initial studies to determine how to progress wider studies*** ***1/08/2021 Stop: Go – PSG to evaluate progress in trials with new packaging*** ***1/08/2021 Stop: Go – PSG to evaluate progress in trials***
Leader	

Milestone 1.5.1

Milestone description	Study undertaken on consumer packaging in NZ for all summerfruit.
Achievement measures	NZ consumer requirements for packaging identified for all summerfruit.
Start date	1/09/2018
End date	1/08/2020
Links to other milestones	Contributes to activities in 2.3 and 2.6 Associated with milestones in activities 3.2 and 3.3

Milestone 1.5.2

Milestone description	Packaging preferences in preferred export markets and summerfruit.
Achievement measures	Greater understanding of consumers response to types of packaging for combinations of summerfruit and priority markets.
Start date	1/09/2018
End date	1/06/2021, 1/08/2013, 1/08/2015
Links to other milestones	Contributes to activities in 2.3 and 2.6 Associated with milestones in activities 3.2 and 3.3

Milestone 1.5.3

Milestone description	Consumer responses to new packaging in NZ.
Achievement measures	New packaging trialled with NZ consumers.
Start date	1/09/2019
End date	1/08/2021, 1/08/2024
Links to other milestones	Contributes to activities in 2.3 and 2.6 Associated with milestones in activities 3.2 and 3.3

Milestone 1.5.4

Milestone description	Consumer responses to new packaging in export markets.
Achievement measures	New packaging trialled with consumers in selected export markets.
Start date	1/09/2019
End date	1/08/2022
Links to other milestones	Contributes to activities in 2.3 and 2.6 Associated with milestones in activities 3.2 and 3.3

Activity 1.6 Nutraceutical potential

Activity description	The nutraceutical potential of summerfruit will be evaluated.
Activity achievement measures	Information to determine how to focus on health/nutritional benefits. Nutraceutical opportunity critically determined and taken up.
Start date	1/09/2018
End date	1/06/2023 ***1/08/2019 Stop: Go – PSG to assess results from initial studies on composition before carrying out trials*** ***1/08/2021 Stop: Go – PSG to evaluate progress in trials before product development***
Leader	

Milestone 1.6.1

Milestone description	Study on nutraceutical composition relevant to consumers health perceptions.
Achievement measures	Nutraceutical opportunity well defined.
Start date	1/09/2018
End date	1/08/2020
Links to other milestones	Contributes to milestones in activity 4.2 Associated with milestones in activity 5.4

Milestone 1.6.2

Milestone description	Trials on efficacy commenced.
Achievement measures	Efficacy defined.
Start date	1/09/2019
End date	1/08/2021
Links to other milestones	Contributes to milestones in activity 4.2 Associated with milestones in activity 5.4

Milestone 1.6.3

Milestone description	Product development.
Achievement measures	Product development initiated.
Start date	1/09/2020
End date	1/08/2023
Links to other milestones	Contributes to milestones in activity 4.2 Associated with milestones in activity 5.4

Project 2 New market development

Project description	This project will work closely with project 1 to ensure market development activities align with the information on consumers and the priority list of markets.
Project achievement measures	1. List of target markets for specific fruits. 2. Analysis of competitors value propositions in selected markets. 3. Strategies developed for NZ market and export markets. 4. Market access is achieved in these target markets. 5. Traceability enables market development. 6. Emerging market channels are well understood and opened up.
Start date	1/09/2018
End date	30/08/2025
Leader	

Activity 2.1 Market requirements and conditions

Activity description	In this activity we will analyse market requirements and conditions for: • current markets and access to ensure we are exploiting all opportunities, eg Hong Kong, Singapore, Thailand, Taiwan • potential new markets such as apricots for China, which will require substantial development • new markets will be prioritised.
Activity achievement measures	List of target markets for specific fruits prioritised.
Start date	1/09/2018
End date	1/08/2021 ***1/08/2021 Stop: Go – PSG to evaluate progress and approve next tranche of work***
Leader	

Milestone 2.1.1

Milestone description	Review current markets for further opportunities.
Achievement measures	New opportunities identified. ***Stop: Go – PSG to approve***
Start date	1/09/2018
End date	1/08/2020
Links to other milestones	Contributes to milestones in activities 2.2, 2.3, 2.4 and 2.6

Milestone 2.1.2

Milestone description	Identify potential new markets.
Achievement measures	List of target markets for specific fruits.
Start date	1/09/2019
End date	1/08/2021
Links to other milestones	Contributes to milestones in activities 2.2, 2.3, 2.4 and 2.6

Milestone 2.1.3

Milestone description	Prioritise new markets.
Achievement measures	New markets and fruits prioritised.
Start date	1/09/2019
End date	1/08/2021
Links to other milestones	Dependent on milestones 2.1.1 and 2.1.2 and milestones in activity 1.3 Contributes to milestones in activities 2.3, 2.4 and 2.6

Activity 2.2 Competitor analysis

Activity description	We will develop a full understanding of competitors, including their production systems, in the identified markets and fruits.
Activity achievement measures	Analysis of competitors value propositions in priority markets and for fruits.
Start date	1/09/2019
End date	1/08/2021
Leader	

Milestone 2.2.1

Milestone description	Identification of competitors in priority markets and fruits for analysis.
Achievement measures	Lists of competitors and issues.
Start date	1/09/2019
End date	1/08/2021
Links to other milestones	Dependent on activity 2.1 Contributes to activities 2.3, 2.4 and 2.6

Milestone 2.2.2

Milestone description	Full competitor analysis and production systems.
Achievement measures	Competitors well understood.
Start date	1/09/2019
End date	1/08/2021
Links to other milestones	Dependent on activity 2.1 Contributes to activities 2.3, 2.4 and 2.6

Activity 2.3 Strategies for new markets

Activity description	In this activity we will identify strategies for new markets, both in Asia and New Zealand. We will identify opportunities to exploit unsupplied or underdeveloped markets.
Activity achievement measures	Report on opportunities and strategies.
Start date	1/09/2019
End date	1/08/2021 ***1/08/2020 Stop: Go – PSG to evaluate progress and approve next tranche of work*** ***1/08/2021 Stop: Go – PSG to re-forecast projected export volumes and values and modified outcomes developed as appropriate as more information is known***
Leader	

Milestone 2.3.1

Milestone description	Strategies for NZ market and fruits.
Achievement measures	Information developed for new strategies for NZ market and fruits.
Start date	1/09/2019
End date	1/08/2021
Links to other milestones	Dependent on milestones in activities 2.1 and 2.2 Contributes to milestones in activities 1.2, 2.4 and 2.6

Milestone 2.3.2

Milestone description	Strategies for export market and fruits.
Achievement measures	Information developed for new strategies for export market and fruits.
Start date	1/09/2019
End date	1/08/2021
Links to other milestones	Dependent on milestones in activities 2.1 and 2.2 Contributes to milestones in activities 1.2, 2.4 and 2.6

Activity 2.4 Opening new markets

Activity description	We will prioritise the opening of new markets for specific fruits. This will be informed by the time frames for access. We will work closely with government departments such as MPI and MFAT to have clear information on market access for prioritisation.
Activity achievement measures	Market access issues are identified. Market trials are carried out.
Start date	1/09/2018
End date	1/08/2024
Leader	

Milestone 2.4.1

Milestone description	We will identify the market access issues that will limit the exports.
Achievement measures	Market access issues identified.
Start date	1/09/2018
End date	1/08/2020
Links to other milestones	Dependent on milestones in activities 2.1, 2.2, 2.3 Contributes to activities in 1.2, 1.3, 2.6 Associated with activity 5.1

Milestone 2.4.2

Milestone description	Market trials.
Achievement measures	Market trials are carried out. Market access is achieved in these target markets.
Start date	1/09/2020
End date	1/08/2024
Links to other milestones	Dependent on milestones in activities 2.1, 2.2, 2.3 Contributes to activities in 1.2, 1.3, 2.6 Associated with activity 5.1

Activity 2.5 Traceability systems

Activity description	Develop traceability systems.
Activity achievement measures	We will develop systems to prove the origin and traceability of the products, because the New Zealand provenance of the fruit, its quality and environmental sustainability is important.
Start date	1/09/2019
End date	1/08/2022
Leader	

Milestone 2.5.1

Milestone description	Identify requirements for traceability.
Achievement measures	Traceability requirements and potential systems for delivery identified.
Start date	1/09/2019
End date	1/08/2020
Links to other milestones	Contributes to milestones in activities 1.3, 1.4, 3.1, 3.4 and 5.5

Milestone 2.5.2

Milestone description	Trial new systems.
Achievement measures	New traceability systems identified in industry trials.
Start date	1/09/2020
End date	1/08/2022
Links to other milestones	Contributes to milestones in activities 1.3, 1.4, 3.1, 3.4 and 5.5

Activity 2.6 Emerging market channels

Activity description	Responding to changing requirements of emerging marketing channel, eg online sales direct to consumers.
Activity achievement measures	Emerging market channels are well understood. Plans for new market channels developed. Industry trials carried out.
Start date	1/09/2018
End date	1/08/2025 ***1/08/2020 Stop: Go – PSG to evaluate progress and approve next tranche of work***
Leader	

Milestone 2.6.1

Milestone description	Assess potential and requirements of new market channel.
Achievement measures	Emerging market channels are well understood.
Start date	1/09/2019
End date	1/06/2021
Links to other milestones	Dependent on milestones 2.1, 2.2, 2.3, 2.4 Contributes to milestone 5.4

Milestone 2.6.2

Milestone description	Develop industry plan for new market channels.
Achievement measures	Plans for new market channels developed.
Start date	01/09/2019
End date	01/08/2022
Links to other milestones	Dependent on milestones 2.1, 2.2, 2.3, 2.4 Contributes to milestone 5.4

Milestone 2.6.3

Milestone description	Develop industry trials.
Achievement measures	Industry trials undertaken.
Start date	1/09/2020
End date	1/08/2022, 1/08/2025
Links to other milestones	Dependent on milestones 2.1, 2.2, 2.3, 2.4 Contributes to milestone 5.4

Project 3 Innovative packaging, packing, transport solutions

Project description	This project will look across the supply chain and create the options needed for transporting the fruit to the target markets with velocity.
Project achievement measures	1. New transport and logistics systems identified. 2. Innovative packaging. 3. Innovative packing systems. 4. In market logistics systems.
Start date	1/09/2018
End date	1/08/2025
Leader	

Activity 3.1 Transport and logistics systems

Activity description	Identifying air and sea freight systems for moving a larger crop while still maintaining highest quality. There will be a focus on the cool chain.
Activity achievement measures	High volumes of fruit delivered to new markets with velocity. New transport and logistics systems.
Start date	1/09/2018
End date	1/08/2025 ***1/08/2020 Stop: Go – PSG to evaluate progress and approve next tranche of work***
Leader	

Milestone 3.1.1

Milestone description	Current industry practices and gap analysis.
Achievement measures	Report on practices and gaps.
Start date	1/09/2018
End date	1/08/2020
Links to other milestones	Contributes to milestones in activities 5.4 and 5.5 Associated with milestones in activities 2.4, 2.5, 2.6

Milestone 3.1.2

Milestone description	Option analysis for logistics to range of countries.
Achievement measures	Effective and commercially achievable options identified.
Start date	1/09/2019
End date	1/08/2021
Links to other milestones	Contributes to milestones in activities 5.4 and 5.5 Associated with milestones in activities 2.4, 2.5, 2.6

Milestone 3.1.3

Milestone description	Trials for optimising new systems.
Achievement measures	New transport and logistics systems achieved.
Start date	1/09/2020
End date	1/06/2025
Links to other milestones	Contributes to milestones in activities 5.4 and 5.5 Associated with milestones in activities 2.4, 2.5, 2.6

Activity 3.2 Innovative packaging

Activity description	In this activity we will carry out studies of consumer requirements for packs in direct to consumer marketing. New packaging will be designed, in tandem with the work in activity 3.3 below. Large scale industry trials will be carried out.
Activity achievement measures	Innovative packaging that meets consumer requirements and delivers fruit with highest quality.
Start date	1/09/2019
End date	1/08/2025 ***1/08/2020 Stop: Go – PSG to evaluate progress and approve plan for industry trials***
Leader	

Milestone 3.2.1

Milestone description	Study of consumer requirements.
Achievement measures	Packaging requirements of consumers in NZ and export markets well understood.
Start date	1/09/2018
End date	1/08/2020
Links to other milestones	Dependent on milestones in activity 3.1 Contributes to milestones in activity 3.3 Associated with milestones in activities 5.4 and 5.5

Milestone 3.2.2

Milestone description	New systems design.
Achievement measures	New packaging configurations will be designed for a range of fruit types and markets.
Start date	1/09/2019
End date	1/08/2021
Links to other milestones	Dependent on milestones in activity 3.1 Contributes to milestones in activity 3.3 Associated with milestones in activities 5.4 and 5.5

Milestone 3.2.3

Milestone description	Industry trials.
Achievement measures	Range of innovative packaging identified and adopted by industry.
Start date	1/09/2020
End date	1/08/2025
Links to other milestones	Dependent on milestones in activity 3.1 Contributes to milestones in activity 3.3 Associated with milestones in activities 5.4 and 5.5

Activity 3.3 Innovative packing systems

Activity description	In this activity we will focus on analysing the requirements and the development of innovative handling and packaging technologies. This will involve consideration of robotic system in packhouses. New systems will be designed and industry trials carried out.
Activity achievement measures	Innovative packing systems that are efficient and deliver fruit with highest quality and shelf life.
Start date	1/09/2019
End date	1/08/2025 ***1/08/2020 Stop: Go – PSG to evaluate progress and approve plan for industry trials***
Leader	

Milestone 3.3.1

Milestone description	Current industry practices and gap analysis.
Achievement measures	Report on practices and gaps.
Start date	1/09/2018
End date	1/08/2020
Links to other milestones	Dependent on milestones in activities 3.1 and 3.2 Contributes to milestones in activities 5.4 and 5.5 Associated with milestones in activity 4.1

Milestone 3.3.2

Milestone description	New systems design.
Achievement measures	New packing systems will be designed for a range of fruit types and markets.
Start date	1/09/2018
End date	1/08/2021
Links to other milestones	Dependent on milestones in activities 3.1 and 3.2 Contributes to milestones in activities 5.4 and 5.5 Associated with milestones in activity 4.1

Milestone 3.3.3

Milestone description	Industry trials.
Achievement measures	Range of innovative packing systems and technologies identified and adopted by industry.
Start date	1/09/2020
End date	1/08/2025
Links to other milestones	Dependent on milestones in activities 3.1 and 3.2 Contributes to milestones in activities 5.4 and 5.5 Associated with milestones in activity 4.1

Activity 3.4 In market logistics systems

Activity description	Understanding internal systems and limitations within markets. In this work we will develop an understanding of internal systems and limitations within markets for prioritised markets and fruits. New systems will be designed and industry trials carried out.
Activity achievement measures	New in market logistics systems optimised and adopted.
Start date	1/09/2019
End date	1/08/2025 ***1/08/2020 Stop: Go – PSG to evaluate progress and approve plan for industry trials***
Leader	

Milestone 3.4.1

Milestone description	Study of in-market systems for prioritised markets and fruits.
Achievement measures	Current positions identified for the industry.
Start date	1/09/2019
End date	1/08/2021
Links to other milestones	Dependent on milestones in activities 3.1, 3.2 and 3.3 Contributes to milestones in activities 5.4 and 5.5 Associated with milestones in activities 2.5 and 4.1

Milestone 3.4.2

Milestone description	New systems design.
Achievement measures	New in market systems will be designed for a range of fruit types and markets.
Start date	1/09/2019
End date	1/08/2022
Links to other milestones	Dependent on milestones in activities 3.1, 3.2 and 3.3 Contributes to milestones in activities 5.4 and 5.5 Associated with milestones in activities 2.5 and 4.1

Milestone 3.4.3

Milestone description	Industry trials.
Achievement measures	Range of innovative in market systems identified and adopted by industry.
Start date	1/09/2019
End date	1/08/2025
Links to other milestones	Dependent on milestones in activities 3.1, 3.2 and 3.3 Contributes to milestones in activities 5.4 and 5.5 Associated with milestones in activities 2.5 and 4.1

Project 4 High performance orchards and improved genetic material

Project description	This project will investigate and optimise the practices needed to produce consistent, high yields and quality. New genetic material will be taken through to commercial production.
Project achievement measures	1. Move to high performance production systems. 2. Development and marketing of new varieties delivering consistent consumer appeal. 3. Sustainable control of pests and diseases with biosecurity readiness programmes for key pests, diseases and viruses. 4. Consistent and reliable fruit set.
Start date	1/09/2018
End date	31/08/2025
Leader	

Activity 4.1 High performance orchards and improved genetic material

Activity description	The activity will develop high performance orchards to result in a paradigm shift in maximising consistent yields and quality.
Activity achievement measures	Move to high performance production systems.
Start date	1/09/2018
End date	31/08/2025
Leader	

Milestone 4.1.1

Milestone description	Production prediction models developed.
Achievement measures	1. Modelling completed of new planting systems for peaches, nectarines and plums to enable increased production of consistent quality product. 2. Planting system developed to achieve increased production levels and consistent quality.
Start date	1/09/2018
End date	31/08/2020
Links to other milestones	Contributes to milestones in activities 4.3, 4.4, 5.2, 5.3 Associated with milestones in activities 4.2 and 5.5

Milestone 4.1.2

Milestone description	High performance orchards developed.
Achievement measures	1. New precision management techniques developed for new summerfruit planting systems enabling the generation of quantitative fruit size and yield prediction metrics/algorithms. 2. Artificial spur extinction adapted for each fruit type for precision management of crop load. 3. Fruit maturity and quality indices developed that supplement current methods.
Start date	1/09/2020
End date	31/08/2025
Links to other milestones	Contributes to milestones in activities 4.3, 4.4, 5.2, 5.3 Associated with milestones in activities 4.2 and 5.5

Milestone 4.1.3

Milestone description	Advisory-style expert support for commercial scale high performance planting systems developed.
Achievement measures	Development of hubs for continuous education/uptake by summerfruit producers completed.
Start date	1/09/2019
End date	31/08/2025
Links to other milestones	Contributes to milestones in activities 4.3, 4.4, 5.2, 5.3 Associated with milestones in activities 4.2 and 5.5

Activity 4.2 Bringing forward genetic material

Activity description	Bringing forward new genetic material to better meet market requirements.
Activity achievement measures	The introduction of new improved elite summerfruit selections meeting market demands for commercialisation.
Start date	1/09/2018
End date	31/08/2025 ***Annual Stop: Go – PSG to evaluate progress and approve plan for taking selections forward***
Leader	

Milestone 4.2.1

Milestone description	Evaluation of advanced apricot, nectarine, peach and plum selections completed.
Achievement measures	1. Initial evaluation completed for. 1.1. Eating quality. 1.2. Brix. 1.3. Pressure. 1.4. Colour/cosmetics. 1.5. Weight/size. 1.6. Storage. 2. Selections for elite evaluation identified.
Start date	1/09/2018
End date	31/08/2025
Links to other milestones	Dependent on milestones in activities 4.1 Contributes to milestones in activities 1.1 and 1.2 Associated with milestones in activities 2.1, 2.3, 2.6, 5.2, 5.4 and 5.5

Milestone 4.2.2

Milestone description	Commercialisation potential identified.
Achievement measures	1. Completion of evaluation for potential commercialisation. 1.1. Eating quality. 1.2. Brix. 1.3. Pressure. 1.4. Colour/cosmetics. 1.5. Weight/size. 1.6. Storage. 1.7. Ethylene production. 1.8. Crop load. 1.9. Packaging and handling ability. 1.10. Acid content. 2. Six selections identified for commercialisation.
Start date	1/09/2018
End date	31/08/2025
Links to other milestones	Dependent on milestones in activity 4.1 Contributes to milestones in activities 1.1 and 1.2 Associated with milestones in activities 2.1, 2.3, 2.6, 5.2, 5.4 and 5.5

Milestone 4.2.3

Milestone description	Evaluation of tree health and tree form for elite selections.
Achievement measures	1. Growth habit identified. 2. Susceptibility to diseases identified.
Start date	1/09/2018
End date	31/08/2025
Links to other milestones	Dependent on milestones in activity 4.1 Contributes to milestones in activities 1.1 and 1.2 Associated with milestones in activities 2.1, 2.3, 2.6, 5.2, 5.4 and 5.5

Milestone 4.2.4

Milestone description	Consumer sensory evaluation of elite selections.
Achievement measures	Laboratory sensory evaluation completed.
Start date	1/09/2018
End date	31/08/2025
Links to other milestones	Dependent on milestones in activity 4.1 Contributes to milestones in activities 1.1 and 1.2 Associated with milestones in activities 2.1, 2.3, 2.6, 5.2, 5.4 and 5.5

Activity 4.3 Sustainable control of pests and diseases

Activity description	This activity delivers on the ongoing process to develop systems for sustainable control of damaging pests and diseases.
Activity achievement measures	Sustainable systems in place and agrichemical use benchmarked.
Start date	1/09/2018
End date	31/08/2025
Leader	

Milestone 4.3.1

Milestone description	Improved knowledge of summerfruit pathogen and pest biology.
Achievement measures	1. Key disease cycle components and optimum control intervention points determined for each fruit type in each growing region. 2. Knowledge gaps about weather, inoculum, and host factors driving risk closed through orchard based studies.
Start date	1/09/2019
End date	31/08/2023
Links to other milestones	Contributes to milestones in activities 4.1, 4.3 Associated with milestones in activities 2.3, 3.4, 5.2, 5.5

Milestone 4.3.2

Milestone description	Improved efficiency of existing control approaches.
Achievement measures	1. Disease control optimised for existing chemical-based technologies using improved knowledge of pathogen biology from 4.3.1. 2. Girdling methods developed for tree vigour management that do not exacerbate bacterial canker. 3. Pest control optimised for existing chemical based methods using improved knowledge of pest biology from 4.3.1.
Start date	1/09/2019
End date	31/08/2023
Links to other milestones	Codependent on success of 4.3.1 Contributes to milestones in activities 4.1, 4.3 Associated with milestones in activities 2.3, 3.4, 5.2, 5.5

Milestone 4.3.3

Milestone description	Reduced reliance on agrichemicals.
Achievement measures	1. Develop non-chemical disease options. 1.1. Ecological and cultural control introduced. 1.2. Benign chemicals incorporated into control programmes. 2. Non pesticide management options introduced. 3. New precision spray technology adopted.
Start date	1/09/2019
End date	30/08/2023
Links to other milestones	Dependent on success of 4.3.1 and 4.3.2 Contributes to milestones in activities 4.1, 4.3 Associated with milestones in activities 2.3, 3.4, 5.2, 5.5

Milestone 4.3.4

Milestone description	Inoculum quantification for disease prediction.
Achievement measures	1. Screen DNA-based methods to find ones that quantitatively detect botrytis and brown rot inoculum in orchards. 2. Calibrate the detection methods by season-long orchard sampling of pathogens. 3. Incorporate optimum lab systems and predictive thresholds (sensitivity and specificity) into a risk prediction protocol. 4. Carry out validation trials. 5. System implementation.
Start date	1/09/2021
End date	31/08/2025
Links to other milestones	Contributes to milestones in activities 4.1, 4.3 Associated with milestones in activities 2.3, 3.4, 5.2, 5.5

Milestone 4.3.5

Milestone description	Develop disease and prediction models.
Achievement measures	1. Develop weather based infection risk models for botrytis and brown rot (using knowledge gained from 4.3.1). 1.1. Adapt existing botrytis risk model for use in cherries and develop prototype predictive models for brown rot and botrytis. 1.2. Accuracy refinement using prototype models in orchard trials. 1.3. Risk model implementation through industry website and/or smart phone app. 2. Pest prediction models.
Start date	1/09/2020
End date	31/08/2025
Links to other milestones	Contributes to milestones in activities 4.1, 4.3 Associated with milestones in activities 2.3, 3.4, 5.2, 5.5

Milestone 4.3.6

Milestone description	Phytosanitary risks.
Achievement measures	1. Preparedness programmes in place for possible market closure through interception of unwanted pests and microorganisms by importing countries. 2. Organisms that constitute a risk identified.
Start date	1/09/2019
End date	31/08/2025
Links to other milestones	Contributes to milestones in activities 4.1, 4.3 Associated with milestones in activities 2.3, 3.4, 5.2, 5.5

Milestone 4.3.7

Milestone description	Post harvest pest and disease control.
Achievement measures	1. Use of ethyl formate for pest control introduced. 2. Irradiation for pest and pathogen eradication scoped.
Start date	1/09/2018
End date	31/08/2025
Links to other milestones	Contributes to milestones in activities 4.1, 4.3 Associated with milestones in activities 2.3, 3.4, 5.2, 5.5

Milestone 4.3.8

Milestone description	Benchmarking agrichemical use.
Achievement measures	1. Compliance with recommended guidelines. 2. Reduced agrichemical use.
Start date	1/09/2018
End date	31/08/2025
Links to other milestones	Contributes to milestones in activities 4.1, 4.3. Associated with milestones in activities 2.3, 3.4, 5.2, 5.5

Activity 4.4 Consistent fruit set

Activity description	The management of fruit set factors including pollination to maximise consistent production. Novel pollination systems developed to meet the requirements of the new high performance production systems.
Activity achievement measures	Consistent and reliable fruit set leads to high performance production systems.
Start date	1/09/2018
End date	31/08/2025 ***Annual 1/08/2020 Stop: Go – PSG to evaluate progress and approve plan for industry trials on new pollinators***
Leader	

Milestone 4.4.1

Milestone description	Honeybee performance under netting structures improved.
Achievement measures	1. Reduced bee losses (deaths). 2. Improved pollination performance.
Start date	1/09/2018
End date	31/08/2025
Links to other milestones	Contributes to milestones in activities 3.2, 3.3, 3.4, 4.1, 4.2 and 5.2 Associated with milestones in activities 5.4 and 5.5

Milestone 4.4.2

Milestone description	Optimised hive strength, placement and density for new high performance summerfruit plantings.
Achievement measures	Improved and consistent fruit set.
Start date	1/09/2018
End date	31/08/2025
Links to other milestones	Contributes to milestones in activities 3.2, 3.3, 3.4, 4.1, 4.2 and 5.2 Associated with milestones in activities 5.4 and 5.5

Milestone 4.4.3

Milestone description	Implementation of new pollinators for all growing regions.
Achievement measures	1. Identification of new pollinators. 2. Introduction of new pollinators.
Start date	1/09/2018
End date	31/08/2025
Links to other milestones	Contributes to milestones in activities 3.2, 3.3, 3.4, 4.1, 4.2 and 5.2 Associated with milestones in aactivities 5.4 and 5.5

Project 5 Industry development

Project description	This project will: • improve the quality of information utilised in strategic decisions • cope with the varying lead times, pricing parameters, and sequencing needs of all five summerfruit crops • build industry awareness, understanding, and commitment necessary for effective implementation of the strategy • decrease the uncertainty surrounding such decisions by allowing for interactive learning between stakeholders • improve the quality of the strategic analysis and choices by involving those people closest to the situation.
Project achievement measures	1. Information will be available to those who need it, when they need it through an effective implementation and extension programme. 2. Improved models of crop forecasting. 3. New industry systems for data management and benchmarking. 4. New investment taking place within the industry. 5. Innovative and informed industry with best practice guidelines developed.
Start date	1/09/2019
End date	31/08/2025
Leader	

Activity 5.1 Information management

Activity description	In this activity we will develop innovative systems to collect and provide rapid, up-to-date information to growers and all parts of the supply chain. Industry expectations are higher about how information is delivered (both consumers and growers).
Activity achievement measures	Information will be available to those who need it, when they need it through an effective implementation and extension programme.
Start date	1/09/2018
End date	31/08/2023 ***1/08/2020 Stop: Go – PSG to evaluate progress and approve plan for industry IT trials and promotional material***
Leader	

Milestone 5.1.1

Milestone description	Assess/survey information needs in industry.
Achievement measures	Information needs identified.
Start date	1/09/2018
End date	31/08/2020
Links to other milestones	Associated with milestones in activities 2.5, 5.3, 5.5

Milestone 5.1.2

Milestone description	Design and trial new IT tools and systems.
Achievement measures	New information and IT systems identified and trialled.
Start date	1/09/2019
End date	31/08/2023
Links to other milestones	Associated with milestones in activities 2.5, 5.3, 5.5

Milestone 5.1.3

Milestone description	Design generic promotional material.
Achievement measures	New promotional material in use.
Start date	1/09/2020
End date	31/08/2023
Links to other milestones	Associated with milestones in activities 2.5, 5.3, 5.5

Activity 5.2 Crop forecasting and labour requirement modelling

Activity description	In this activity we will develop systems for reliable crop forecasting and labour modelling.
Activity achievement measures	Crop forecasting achieved to within 10% of final date and yield.
Start date	1/09/2018
End date	31/08/2025 ***1/08/2020 Stop: Go – PSG to evaluate progress and approve plan for industry trials***
Leader	

Milestone 5.2.1

Milestone description	Review current systems.
Achievement measures	Current system strengths and weaknesses identified.
Start date	1/09/2018
End date	1/06/2021
Links to other milestones	Dependent on milestones in activity 4.1 Contributes to milestones in activities 1.6, 2.6, 3.1, 3.3, 3.4, 4.2, 4.3, 4.4, 5.1 Associated with milestones in activity 3.2

Milestone 5.2.2

Milestone description	Design new options for current and high performance systems.
Achievement measures	New options are ready for trialling.
Start date	1/09/2020
End date	1/06/2023
Links to other milestones	Dependent on milestones in activity 4.1 Contributes to milestones in activities 4.4, and 5.1 Associated with milestones in activities 3.2 and 4.3

Milestone 5.2.3

Milestone description	Trial new options for current and high performance systems.
Achievement measures	Industry trials for crop forecasting have improved level of accuracy.
Start date	1/09/2021
End date	31/08/2022 and 31/08/2025
Links to other milestones	Dependent on milestones in activity 4.1 Contributes to milestones in activities 4.4 and 5.1 Associated with milestones in activities 3.2 and 4.3

Activity 5.3 Benchmarking

Activity description	In this activity we will develop interactive systems to enable growers to benchmark and compare performance. By this the industry will build on the top 10% of current practice and leave old systems behind.
Activity achievement measures	Systems developed to provide improved training/tech transfer.
Start date	1/09/2018
End date	31/08/2025 ***1/08/2020 Stop: Go – PSG to evaluate progress and approve plan for industry trials***
Leader	

Milestone 5.3.1

Milestone description	Review current summerfruit systems and compare with other crops.
Achievement measures	Review completed.
Start date	1/09/2018
End date	31/08/2020
Links to other milestones	Contributes to milestones in activity 4.1 Associated with milestones in activity 5.1

Milestone 5.3.2

Milestone description	Design and trial new processes and IT systems.
Achievement measures	Systems developed and trialled.
Start date	1/09/2019
End date	31/08/2022
Links to other milestones	Contributes to milestones in activity 4.1 Associated with milestones in activity 5.1

Milestone 5.3.3

Milestone description	Develop clubs of interest.
Achievement measures	Clubs of interest created around particular innovation processes through Summerfruit NZ.
Start date	1/09/2020
End date	31/08/2025
Links to other milestones	Contributes to milestones in activity 4.1 Associated with milestones in activity 5.1

Activity 5.4 New investment

Activity description	In this activity we will prepare financial production models to encourage new investment.
Activity achievement measures	Financial models are available for use by all.
Start date	1/09/2019
End date	1/06/2025
Leader	

Milestone 5.4.1

Milestone description	Integrate impacts of all new systems.
Achievement measures	Data collected and analysed.
Start date	1/09/2019
End date	1/06/2023
Links to other milestones	Contributes to milestones in activities 2.6, 3.1, 3.3 and 3.4 Associated with milestones in activities 1.6, 3.2, 4.2 and 4.4

Milestone 5.4.2

Milestone description	Analysis of information needs for new investment.
Achievement measures	Models developed and manuals drafted.
Start date	1/09/2020
End date	31/08/2024
Links to other milestones	Contributes to milestones in activities 2.6, 3.1, 3.3 and 3.4 Associated with milestones in activities 1.6, 3.2, 4.2 and 4.4

Milestone 5.4.3

Milestone description	Design prospectus and financial models.
Achievement measures	Prospectus and financial models completed and in use.
Start date	1/09/2021
End date	31/08/2024
Links to other milestones	Contributes to milestones in activities 2.6, 3.1, 3.3 and 3.4 Associated with milestones in activities 1.6, 3.2, 4.2 and 4.4

Milestone 5.4.4

Milestone description	Develop support programme for new investment.
Achievement measures	Support programme developed and promoted.
Start date	1/09/2022
End date	31/08/2025
Links to other milestones	Contributes to milestones in activities 2.6, 3.1, 3.3 and 3.4 Associated with milestones in activities 1.6, 3.2, 4.2 and 4.4

Activity 5.5 New technology uptake

Activity description	A better understanding of how technology is used by industry participants, and how they go about adopting technology is crucial for industry success. New skills will be required for the widespread adoption of high performance planting systems.
Activity achievement measures	1. Best practice guidelines developed and implemented across the supply chain. 2. Increased returns for grower, packer and exporter.
Start date	1/09/2018
End date	31/08/2025 ***1/08/2020 Stop: Go – PSG to evaluate progress and approve plan for industry trials***
Leader	

Milestone 5.5.1

Milestone description	Review current industry adoption rates and identify gaps.
Achievement measures	Review completed of adoption rates.
Start date	1/09/2018
End date	31/08/2020
Links to other milestones	Contributes to milestones in activities 2.5, 3.1, 3.3 and 3.4 Associated with milestones in activities 3.2, 4.1, 4.2, 4.3, 4.4 and 5.1

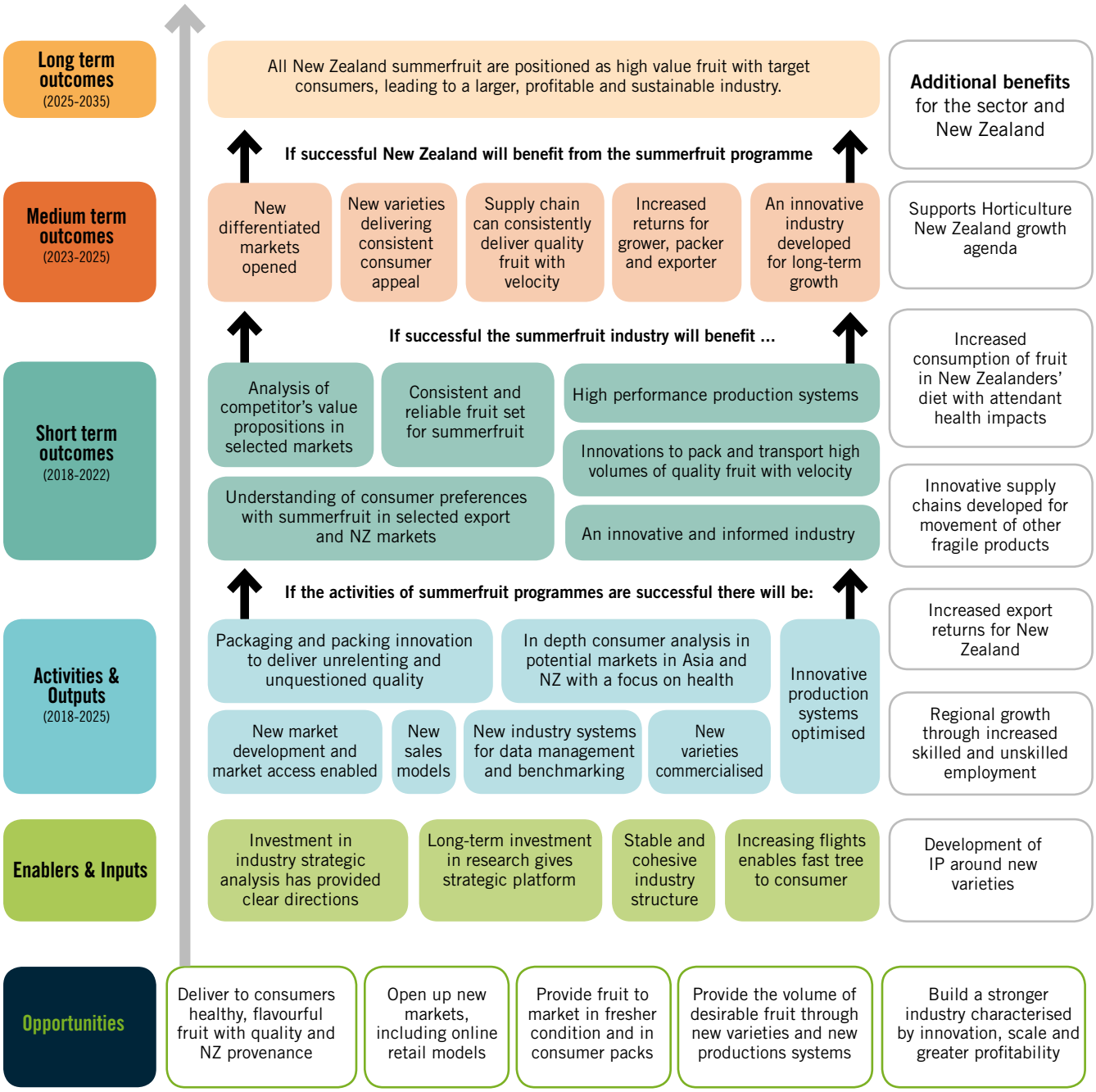
Milestone 5.5.2

Milestone description	Design enhanced models for better adoption.
Achievement measures	All changes in systems for summerfruit collated adoption models and best practice identified for future.
Start date	1/09/2019
End date	31/08/2021
Links to other milestones	Contributes to milestones in activities 2.5, 3.1, 3.3 and 3.4 Associated with milestones in activities 3.2, 4.1, 4.2, 4.3, 4.4 and 5.1

Milestone 5.5.3

Milestone description	Trial new models for enhanced adoption.
Achievement measures	Disseminate successful innovation as fast as practicable.
Start date	1/09/2020
End date	31/08/2025
Links to other milestones	Contributes to milestones in activities 2.5, 3.1, 3.3 and 3.4 Associated with milestones in activities 3.2, 4.1, 4.2, 4.3, 4.4 and 5.1

5.2 Outcome Logic Model – Sensational Summerfruit



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