



**KIWIFRUIT INDUSTRY
INSIGHTS UPDATE 2019
INVESTMENT OPPORTUNITIES
AND CHALLENGES**

PREPARED BY CLIENT INSIGHTS
COMMERCIAL & AGRI

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LORRAINE'S FOREWORD



ANZ believes the kiwifruit industry has an exciting future and the strong demand for quality horticulture land shows there is still significant interest in the sector.

A year on from our last industry report there is plenty of good news to share. We are seeing lots of collaboration across the sector and many of our clients are taking the opportunity to sell off portions of land suitable for horticulture or developing it themselves as they look to diversify their farming businesses.

The pending 2019 release of a further 750 hectares of SunGold licences may present another opportunity for investors to participate in the industry growth story.

ANZ has a long history of involvement in the kiwifruit industry. In this report we aim to highlight some of the considerations for those looking to invest in the industry and some of the risks the industry needs to manage as it looks to expand.

SunGold Orchard Gate Return (OGR) for the 2018/19 season are projected to be at historical highs, but

increased development costs, driven by the changing regulatory climate, environmental compliance and access to water and labour, means robust due diligence and careful planning are important.

We believe a continued focus on sustainable growth is needed to meet the aspirational growth targets set for the kiwifruit sector. This will require ongoing market development, delivering to customer demand on a consistent basis and building the infrastructure required for higher production.

We are grateful for the collaboration with Zespri and New Zealand Kiwifruit Growers Incorporated (NZKGI) and look forward to further discussion with the wider kiwifruit industry.

Lorraine Mapu

General Manager – Northern,
Commercial and Agri – ANZ

The New Zealand (NZ) kiwifruit industry recorded its highest sales to date with total export earnings of over \$1.7b in 2017/18.⁽¹⁾ With growing global demand sustaining momentum and interest in the industry, Zespri continues to work towards its ambition to grow global sales to \$4.5b by 2025.

As the industry grows, potential investors need to be aware of risks arising from capacity constraints, in particular labour availability and water access. The industry is working to overcome these challenges and ensure there is capacity for kiwifruit production to continue to grow.

This report provides a view of the potential market opportunity and challenges to be managed for both current kiwifruit growers and investors in the industry.

OVERVIEW

PURPOSE

This report aims to highlight the considerations for those looking to invest in the kiwifruit industry, with a particular focus on current and potential kiwifruit growers to assist them with their decision-making process.

It reviews the outlook for the industry, domestic and global opportunities over the next decade and some of the risks the industry will need to manage as it expands.

The report builds on last year's *Insights into the kiwifruit industry: Investment opportunities and challenges* and takes a deeper look at the trends impacting the industry to provide an extended insight for current and potential investors.

The analysis provided in this report was undertaken by ANZ with support from New Zealand Kiwifruit Growers Incorporated (NZKGI) and Zespri. The contents of this report are not to be considered financial or investment advice and independent advice is recommended.

STRUCTURE

1. Market opportunity

Global demand growth and Zespri's SunGold licence rollout

2. Orchard performance benchmarking

Hayward, SunGold revenue and on-orchard expenses

3. Investment considerations

Orchard valuation, Greenfield conversions, orchard management, post-harvest management and Zespri shares

4. Risks and challenges

Labour shortages and water access

5. New SunGold orchard financial model

Financial performance of a new SunGold orchard comparing Hayward cutover with Greenfield development

6. Consumer markets and other industry themes

Important themes that affect orchardists

7. Appendix

Infrastructure investment breakdown and new SunGold orchard financial modelling sensitivity.

(1) Zespri, Annual Review, 2017/18; NZ grown total Kiwifruit sales

1. MARKET OPPORTUNITY

With more than 14,000 hectares of orchard and approximately 2,500 growers, New Zealand is the second highest producer of kiwifruit in the world after China.

By 2025, Zespri projects its global revenue will reach NZ \$4.5b. This represents a significant increase over current levels of production and will require a step change in the way the industry operates to meet growing consumer demand. The industry's growth is expected to result in tray volumes increasing to up to 260m trays by 2025 from 139m trays in 2017/18.⁽²⁾

The SunGold variety is expected to be responsible for the lion's share of projected growth, with New Zealand volumes expected to increase to more than 88m trays in 2021/22.⁽²⁾

3,750 hectares of SunGold licences are expected to be released out to 2022 (including the 2018 release) at an annual rate of 750 hectares, subject to annual review. This includes Zespri's SunGold organic range, with 50 hectares already allocated in 2018 and another 50 hectares to be released annually over the next four years.⁽³⁾

Similar to the 2018 season, Zespri expects half of new SunGold licences to be cutover from existing Hayward orchards (green kiwifruit) and half to be from Greenfield developments. In order to manage OGR for growers, Zespri may alter the annual rate of licence issuance if there is a risk of supply outstripping global demand.

Zespri remains confident that demand for green will continue to grow on the back of ongoing investment in developing markets and sales channels. Zespri does expect the planted area of Hayward to moderate through the ongoing availability of SunGold licences, which it says would reduce green hectares but support green returns.

(2) Zespri, 5 Year Outlook, November 2017

(3) Zespri, Kiwiflier December 2018; Zespri has confirmed it will release an additional 700ha of SunGold and 50ha of organic SunGold licences in 2019



2. ORCHARD PERFORMANCE BENCHMARKING

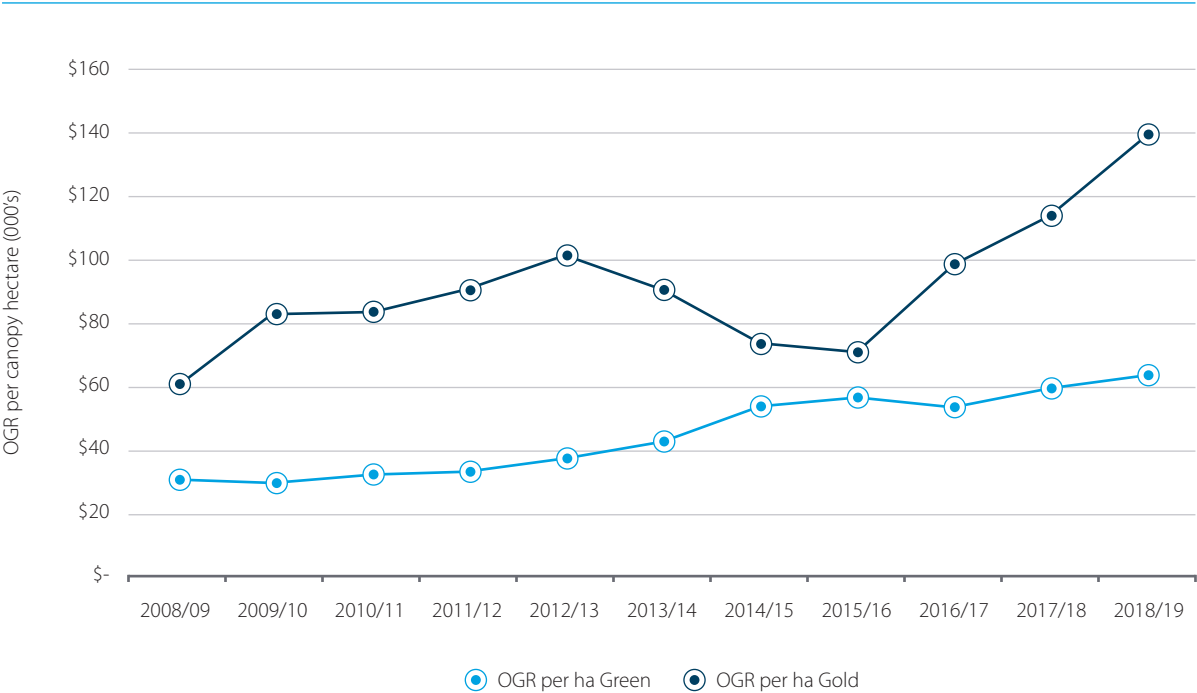
REVENUE

OGR is the revenue received by an orchardist after post-harvest costs are deducted. OGR is driven by yields, fruit size, dry matter content, market prices and other off-orchard costs such as coolstore, packing costs, marketing, logistics, etc.

OGR has improved over the past decade. In the latest December 2018 forecasts for the 2018/19 season, Zespri is forecasting an average OGR of almost \$64k per hectare for Hayward (green) and \$140k per hectare for SunGold.⁽¹⁾⁽³⁾

AVERAGE KIWIFRUIT OGR PER HECTARE (\$000'S)

Source: Zespri



(1) Zespri, Annual Review, 2017/18

(3) Zespri, Kiwiflier, December 2018

BREAKDOWN OF ON-ORCHARD COSTS

We reviewed the expense trends of New Zealand kiwifruit orchards. Data from 63 orchards contributed to the ANZ analysis. Only orchards that generated at least 70% of total orchard income from kiwifruit sales were included. Orchard sizes ranged from two to 17 canopy hectares in size.

The graph below summarises the median wages, pollination, fertiliser, and weed and pest expenses per canopy hectare. Our sample consists of both Hayward and SunGold orchards. Direct growing costs have increased over the past three years, with the median Hayward and SunGold cost per canopy hectare rising from \$28k per hectare in 2015 to \$37k per hectare in 2017.

The growth in direct growing costs was driven primarily by wages between 2015 and 2016. Although wages per hectare stayed relatively constant between 2016 and 2017, this is in part due to the larger size of orchards and

a lower sample size in 2017. Orchards with the same canopy hectares in both 2016 and 2017 had an average wage increase of \$1k per hectare.

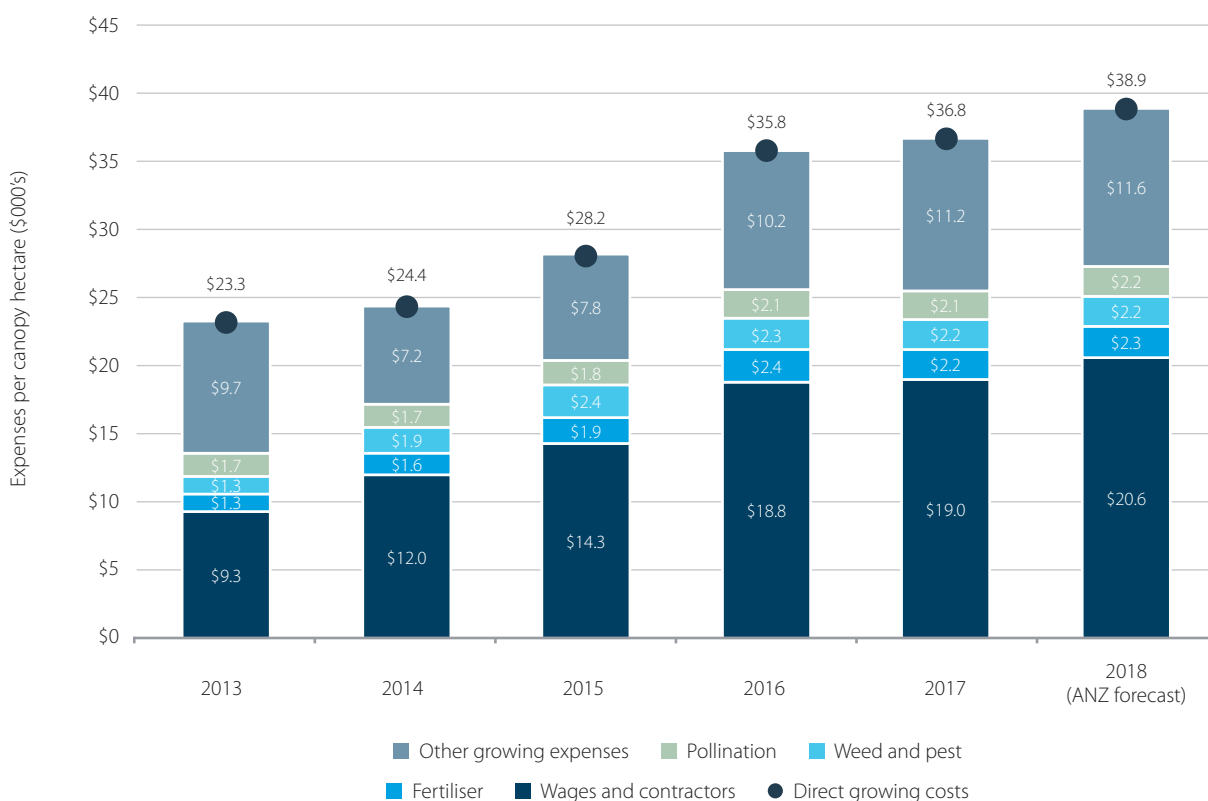
We forecast on-orchard costs for 2018 using a mix of actual financials and our projections for different orchards. We forecast an increase in direct growing costs to \$39k per hectare, largely from an increase in wage costs, which we forecast to rise to \$20.6k per hectare.

The median wage expense typically ranges between 45-55% of direct growing costs. The Government has pledged to increase the minimum wage to \$20 per hour by 2021, a 21% increase from the current \$16.50 per hour, which is likely to lift wages over the next two years.

Pollination, fertiliser, and weed and pest typically represent about 15-25% of an orchard's direct costs. These expenses have increased but at a slower pace than wages.

BREAKDOWN OF THE MAIN ORCHARD EXPENSES (SAMPLE MEDIAN)

Source: ANZ Analysis



THE GROWTH IN DIRECT GROWING COSTS WAS
DRIVEN PRIMARILY BY WAGES. THE MEDIAN
WAGE EXPENSE TYPICALLY RANGES BETWEEN
45-55% OF DIRECT GROWING COSTS.



3. INVESTMENT CONSIDERATIONS

EXISTING ORCHARD VALUATIONS

Based on our research and customer interactions in the Bay of Plenty (BOP) we see green orchards currently valued around \$300k-450k per hectare and SunGold orchards around \$800k-1,000k per hectare. However we have seen some recent SunGold orchard valuations above \$1.0m per hectare, although it is uncertain whether such prices will be maintained.

Values are dependent on the quality of the orchard and associated infrastructure (e.g. soil quality, frost protection, shelter, buildings, etc).

BOP KIWIFRUIT PROPERTY VALUATIONS

Source: ANZ Economics Agri Focus, Real Estate Institute of New Zealand

Pre-PSA ⁽⁴⁾		2018	
Green	\$250k ha	Green	\$300k – \$450k ha
Gold	\$450k ha	Gold	\$800k – \$1,000k ha

COMPARING KIWIFRUIT TO OTHER PRIMARY SECTOR RETURNS

We compare kiwifruit earnings before interest and tax (EBIT) per hectare to dairy, apples and sheep and beef.

It is important to note that this analysis is from 2013 to 2017 and over this period the Kiwifruit industry recovered from the PSA disease which negatively affected profits.

In addition, the kiwifruit figures in the tables below are from orchards with either Hayward, SunGold or a combination of both varieties. Hence returns to a SunGold orchard alone would likely be above the figures stated.⁽⁵⁾ SunGold production was also lower in 2013 than it was in 2017, meaning that the average kiwifruit EBIT per canopy hectare in 2017 is likely higher than the 2013-2017 average.

Keeping those caveats in mind, horticultural land uses provided stronger earnings than pastoral land uses, with kiwifruit as much as 10 times the median dairy EBIT and 50 times the median sheep and beef EBIT.

Please note this analysis excludes the capital investment required to generate the earnings outlined, which would be reflected in the return on assets and return on invested capital for the different primary sectors.

EBIT PER HECTARE (AVERAGE 2013-2017)⁽⁶⁾

Source: ANZ Analysis

Land use	Lower quartile	Median	Upper quartile
Kiwifruit [Hayward & SunGold] (per canopy hectare)	\$10,685	\$17,697	\$26,418
Apples (per effective hectare)	\$6,751	\$14,976	\$35,489
Dairy (per milking hectare)	\$684	\$1,300	\$2,074
Sheep and beef (per effective hectare)	\$145	\$337	\$732

(4) Pseudomonas syringae pv. actinidiae

(5) Our indicative EBIT for Hayward and SunGold orchards are \$22.5k and \$79k respectively, assuming an OGR per hectare of \$60.5k and \$119k and growing costs of \$38k and \$40k for Hayward and SunGold respectively (and assuming no amortisation or depreciation).

(6) Sample size: 63 kiwifruit orchards, 21 apple orchards, 2000 dairy farms and 160 sheep and beef farms.

GREENFIELD CONVERSIONS

Orchardists who wish to grow SunGold require a licence (paid for on a per hectare basis) from Zespri, which owns the intellectual rights to the variety. Zespri's 2018 release of SunGold licences saw around half of the total allocation taken up by orchardists in the BOP.⁽⁷⁾ About 80% of all New Zealand kiwifruit is grown in the BOP (see chart below).⁽¹⁾

These allocations were predominantly for conversions from existing pastoral or Hayward (green) orchards being cutover to the SunGold variety.

In the absence of substantial land use change, there isn't enough land to accommodate expected growth for SunGold in the Western BOP alone. There is increasing interest in available land in the Eastern BOP as well as Greenfield developments already taking place in other regions outside the BOP, Northland in particular.

However, while these other regions are already established growing areas, there are still constraints to overcome, including local council restrictions, water access, labour shortages and post-harvest infrastructure.

ORCHARD MANAGEMENT

Investors in SunGold can be either fully active by running owner-operator models, or take a more passive approach by putting in place management contracts, or leasing out the orchard.

Management contracts can be either directly with the packhouse or through independent orchard management companies. Packhouses and individuals lease orchards on either a short- or long-term basis.

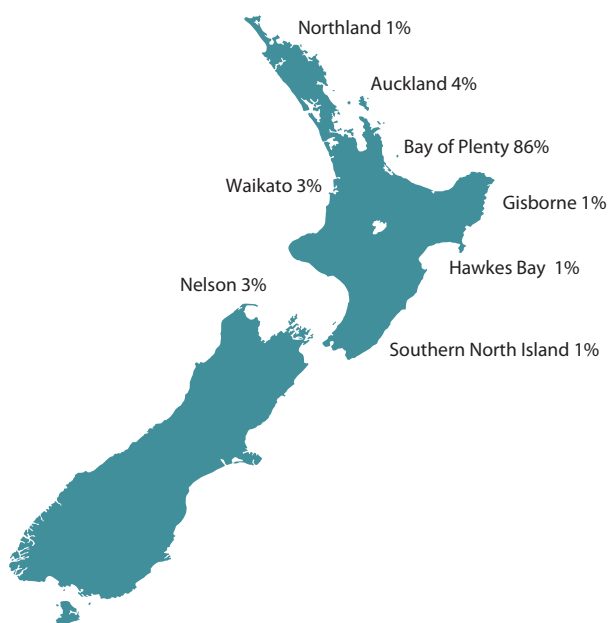
Owner-operators are able to turn to their packhouse for management advice or a number of horticulture consultants. Zespri and NZKGI also provide grower support and offer field days and written publications.

Another source of orchard management advice and support is the growers themselves. The kiwifruit industry as a whole is highly collaborative. Kiwifruit growers share expertise and experience to support each other's operations.

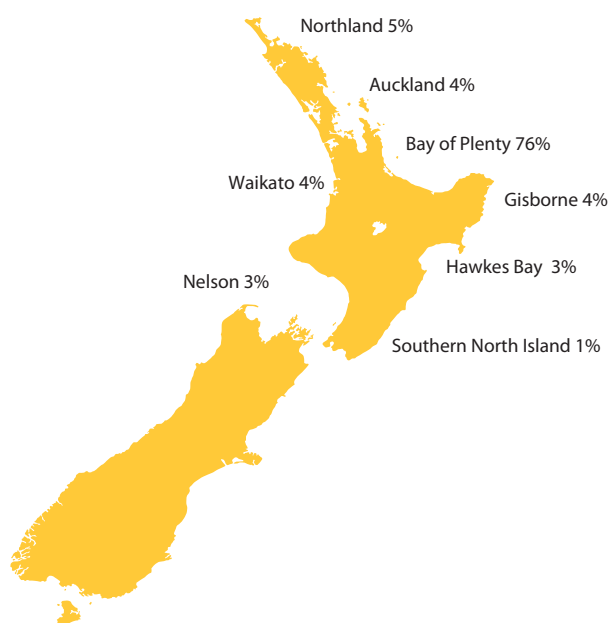
NEW ZEALAND ORCHARD LOCATIONS

Source: Zespri

Green kiwifruit



SunGold kiwifruit



(7) Zespri, Kiwiflier, May 2018

(1) Zespri, Annual Review, 2017/18

POST-HARVEST MANAGEMENT

Alongside orchard management, we think growers will need to manage post-harvest considerations and undertake due diligence that a packhouse has the capacity to process their fruit going forward. As Zespri expands SunGold production, there is a need to future proof packhouse capacity with additional packing and storage facilities.

In order for capacity to increase we see the need for packhouses to source additional funding from one, or a combination of:

- Debt from financial institutions
- Shareholder capital
- Introduction of capital from outside the sector
- Retained profits (decrease dividend).

Packing demand is also projected to have periods of high concentration during the picking season due to the SunGold harvest (see projected weekly trays picked and packed for 2027 compared to 2017 in the chart below). Hence, the challenge will be to have enough processing capacity during peak production while maintaining packhouse utilisation outside of the peak to maintain attractive returns.

As with any supply/demand dynamic, bargaining power between growers and packhouses shifts over time. If capacity constraints worsen, packhouses may be more selective in the fruit they pack, upward pressure may be placed on packing costs and some growers may find it difficult to get their fruit packed.

Growers could choose to mitigate these risks by becoming packhouse shareholders. This could provide greater assurance that their fruit will be processed and have the added benefit of injecting capital into the packhouse sector. However sufficient due diligence and independent advice is recommended if taking this approach.

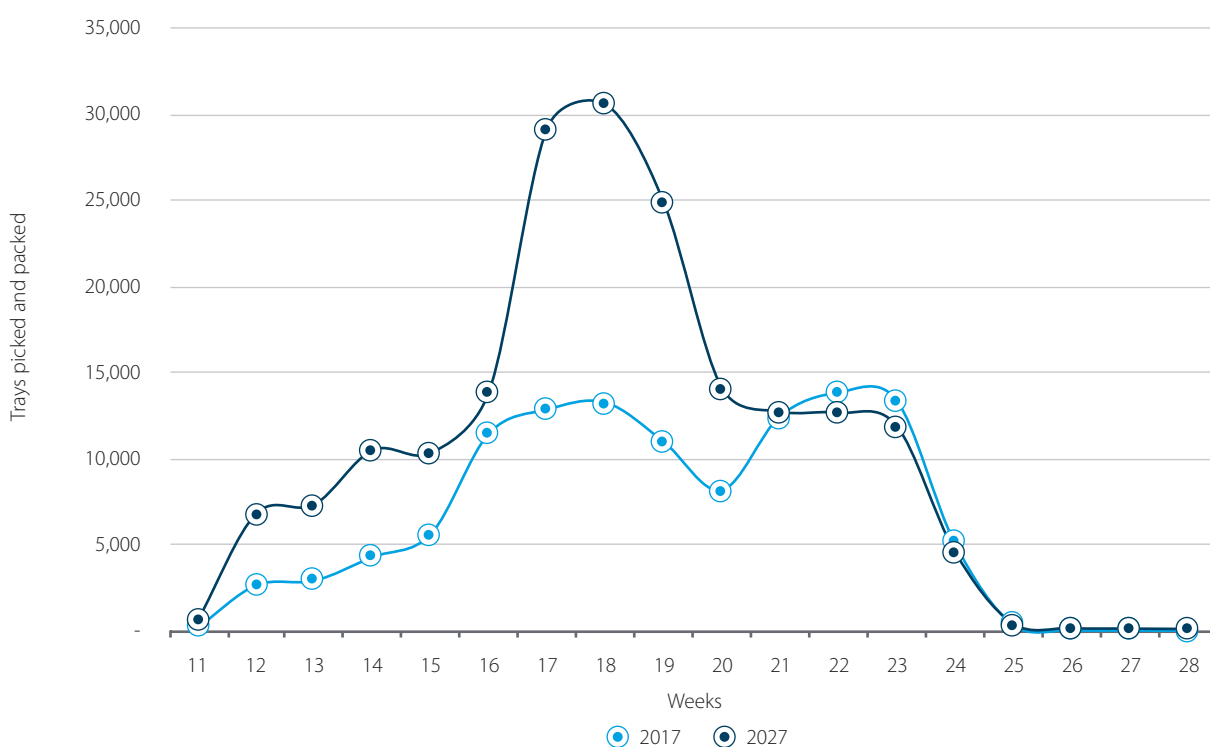
ZESPRI SHARES

Zespri shares are available to kiwifruit growers, which Zespri says enables them to take ownership and control of their marketer. However, it is important to note that not all growers are shareholders. It is up to the individual entity as to whether investment in Zespri shares is suitable.

We recommend independent advice when considering the suitability of Zespri shares.

WEEKLY TRAYS PICKED AND PACKED AND THE DEMAND ON LABOUR⁽⁸⁾

Source: NZKGI, New Zealand Kiwifruit Labour Shortage, July 2018



(8) This forecast is calculated as a percentage increase upon 2017 volumes and does not take seasonal or storage variables into consideration.



WE CONSIDER LABOUR SHORTAGE
AND WATER ACCESS TO BE THE
KEY INDUSTRY CHALLENGES.

4. RISKS AND CHALLENGES

OVERVIEW

When growers assess the suitability of kiwifruit as an investment, a number of considerations need to be made. The opportunity for the kiwifruit industry to grow will require working through these challenges at each stage of the supply chain.

For growers converting from a previous land use, we think local council regulations, water availability, land suitability, altitude, labour availability, logistics and other supporting infrastructure will need to be assessed. This also includes any other matters unique to your land, business and circumstances.

Packhouse capacity is another key constraint which will need to be considered. As highlighted previously, in order to keep pace with projected volume growth, our view is that further capital investment will be required by the industry in this area.

We encourage labour and other capacity constraints to be built into budget forecasts to help prevent surprises in increased costs that could reduce grower profitability.

There are many considerations for growers and investors in assessing the suitability of kiwifruit as an investment. We have not presented an exhaustive list and you should obtain professional advice on this. However, in this section we cover what we consider to be the key industry challenges of labour shortages and water access.

SOME RISKS AND CHALLENGES ACROSS THE SUPPLY CHAIN

Source: ANZ's own assessment

Orchard	<ul style="list-style-type: none">• Land conversion and water access• Labour availability and health and safety• Orchard management• Sustainability and biosecurity• Other: Succession, rootstock
Packhouse	<ul style="list-style-type: none">• Processing capacity• Labour availability• Sustainability• Technology and automation• Health and safety
Consumer	<ul style="list-style-type: none">• Marketing• Brand reputation premium• Food safety• Tariff barriers• Cultivars innovation, organics

LABOUR SHORTAGES

To cope with the expansion related to increased global demand, an additional 7,000 seasonal workers will be required by 2027.⁽⁹⁾ In the 2018 harvest season, the Ministry of Social Development declared a seasonal labour shortage across the BOP where an additional 1,200 workers were required.⁽⁹⁾ The declaration allowed visitor visa holders to undertake seasonal work in the BOP for up to six weeks.⁽¹⁰⁾

The Recognised Seasonal Employer (RSE) scheme allows the recruitment of workers from overseas for seasonal work when there are not enough New Zealand workers. The number of workers allowed into the country has increased by 1,750 since 2017, which means an additional 322 workers for the BOP in the 2019 season.⁽¹¹⁾ While this is a step in the right direction, NZKGI has highlighted the extra workers will not be enough to sustain labour requirements. Compounding the labour shortage is the current low unemployment rate.

Additional workers mean additional accommodation requirements. The industry is looking to build or convert existing housing into seasonal accommodation, however this can be a costly process. By 2023, it is expected that there will be an additional 1,416 beds in the BOP, however NZKGI projects that this will not be enough to meet demand.⁽¹¹⁾

To help alleviate the worker shortage, NZKGI has highlighted the industry is looking at ways to attract workers by:

- Improving pay rates
- Providing housing and travel arrangements
- Improved flexibility
- Offering more permanent contracts and securing workers earlier.

WATER ACCESS

The National Policy Statement for Freshwater Management directs regional councils to look at how they manage freshwater.⁽¹²⁾ This has resulted in a number of council plan changes which have an impact on water use on orchards. While plan changes will differ in each region, common themes are generally:

- Increased reporting and monitoring
- Reduced takes
- Declined consents in over-allocated areas
- Cultural impact assessments.

In over-allocated area catchments, NZKGI believes that community water user groups will be beneficial for shared water resource usage, shared water storage infrastructure costs and a collaborative approach to regulatory changes.

From our recent experience securing water access should be one of the main considerations before land purchase. Bay of Plenty Regional Council has publicly notified that the proposed plan changes to its water management provisions include the decline of new consents in areas where catchments are already over allocated.⁽¹³⁾ This means new orchard placements may be determined where there is water availability.

NZKGI also highlights the way water is used on orchards is likely to change due to warmer temperatures bringing longer summers with limited rainfall, which would reduce soil moisture levels and ground/surface water supplies. In addition, competing demands on water from domestic, industrial, agricultural, power and other uses will likely require growers to become a lot more efficient with water use.

(9) <https://www.msd.govt.nz/about-msd-and-our-work/newsroom/media-releases/2018/bay-of-plenty-labour-shortage-declaration.html>

(10) <http://www.scoop.co.nz/stories/BU1805/S00202/seasonal-labour-shortage-declared-for-bop-kiwifruit-industry.htm>

(11) NZKGI, New Zealand Kiwifruit Labour Shortage, July 2018

(12) <http://www.mfe.govt.nz/fresh-water/national-policy-statement/developing-2014-nps>

(13) <https://www.boprc.govt.nz/your-council/plans-and-policies/plans/regional/regional-natural-resources-plan/region-wide-water-quantity-plan-change-plan-change-9/>

5. NEW SUNGOLD ORCHARD FINANCIAL MODEL

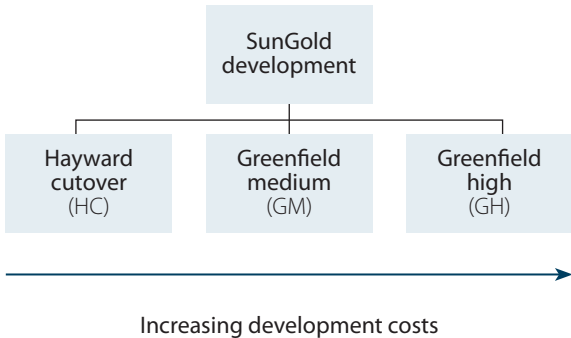
IMPORTANT INFORMATION

The cost of land, licences, development and the funding structures applied by individual orchards will differ from our examples provided in this section. These examples do not consider any movements in OGR, interest rates, kiwifruit yields or any other underlying costs structures which change over time in line with market conditions. Understanding these sensitivities is an important part of the due diligence process and independent advice is recommended.

This section models the potential financial performance of a new SunGold orchard by comparing an existing Hayward cutover (HC) with two Greenfield development hypothetical scenarios – Greenfield medium (GM) and Greenfield high (GH) development costs.

The range of development costs is driven by different infrastructure investment costs, such as water bore and consent, shelter, support structures, plants and additional site preparation.

We compare the financial performance and economic return of the three hypothetical scenarios over a 10-year timeframe.



DEVELOPMENT COSTS ASSUMPTIONS

The table below summarises our development costs assumptions for the HC, GM and GH scenarios.

The main difference in each scenario is the infrastructure investment required to develop the orchard on a per hectare basis. On a per hectare basis development costs are influenced by the size of the investment and of the orchard itself.

The GM and GH scenarios are indicative as there are many different possibilities, such as a Greenfield development on a dairy farm whereby the land is already owned. In this case the land cost wouldn't apply as part of the development scenario as it has previously been purchased.

Larger orchards may be able to achieve a lower per hectare development cost for the same infrastructure investment, e.g. spreading the development cost of a water bore over a larger production area.

We estimate that SunGold Greenfield development costs typically range between 2.0 times (GM) and 2.3 times (GH) the cost of a Hayward cutover development.⁽¹⁴⁾

A breakdown by item of the infrastructure investment is provided in Appendix 1 at the back of the report.

DEVELOPMENT COSTS ASSUMPTIONS FOR HC, GM AND GH SCENARIOS

Source: ANZ Analysis

Development costs	Hayward cutover	Greenfield medium cost	Greenfield high cost	Comments
Land value	Already owned	\$125k per hectare	\$125k per hectare	We assume \$125k per hectare for Western BOP (bare land). Land values vary by region.
SunGold licence		\$250k per hectare		2018 licence release was oversubscribed.
Infrastructure investment (water bore, consent, shelter, support structures, plants, additional site preparation)	\$20k per hectare (additional site preparation only)	\$150k per hectare	\$250k per hectare	Infrastructure investment will vary depending on the size of the investment and the orchard itself. Note that hail netting has not been included in our modelling.
Total	\$270k per hectare	\$525k per hectare	\$625k per hectare	

(14) ANZ Analysis

CAPITAL INVESTMENT AND FUNDING

First, suitable land and a licence for SunGold need to be purchased. For our example we have assumed a land price of \$125k per hectare and a SunGold licence cost of \$250k per hectare.

As previously explained, we assume an infrastructure investment (water bore, shelter, etc) of \$20k, \$150k and \$250k per hectare respectively for HC, GM and GH to develop the orchard infrastructure. We assume a further capital allocation of \$100k to meet growing costs before the SunGold vines reach full maturity at five to six years.

Total capital investment is \$370k, \$625k and \$725k per hectare respectively for HC, GM and GH. For simplicity we assume that all capital required is captured on balance sheet at day one. In reality, the drawdown of capital is likely to be staged over the first few years as the orchard is developed.

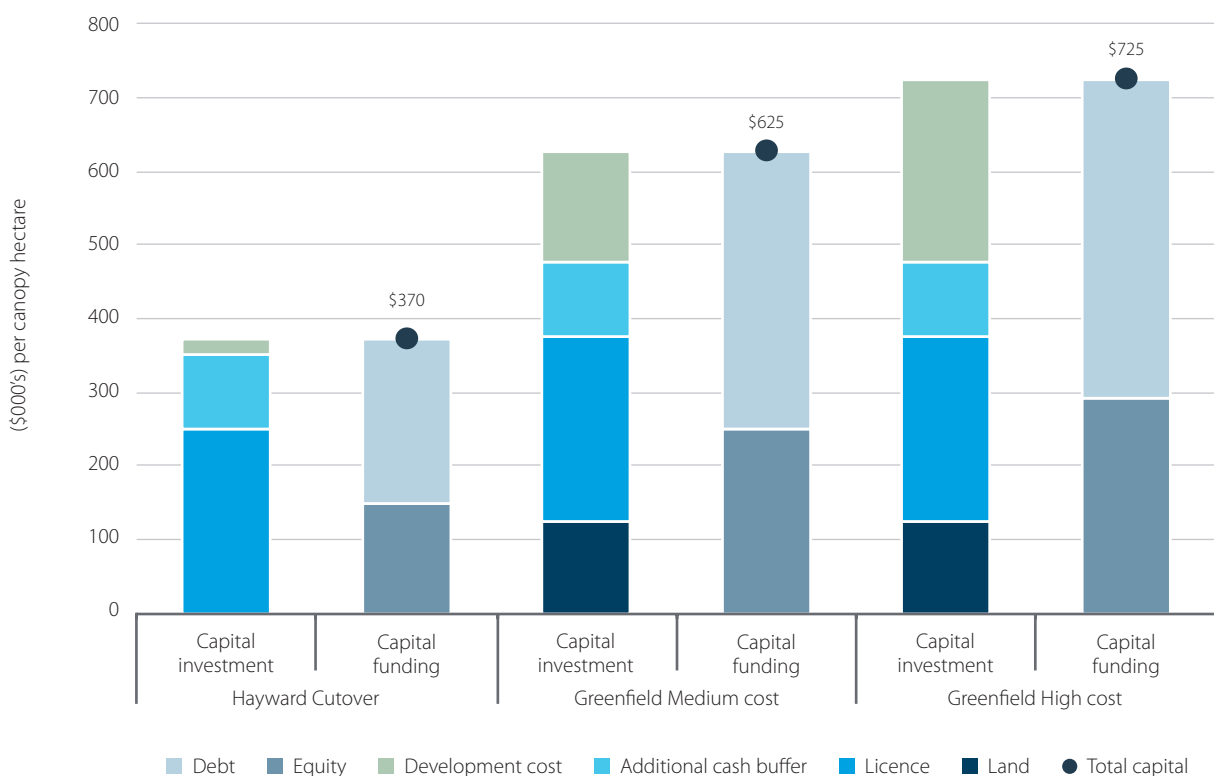
It is also important to highlight that actual costs will differ from the figures provided above. This will be dependent on many things such as the condition of the land prior to development, water availability, shelter requirements, etc. Additionally, there may be variability in other operating expenses which are incurred before the kiwifruit vines start to yield revenue over and above their ongoing annual cost. These movements are not considered in this analysis.

BALANCE SHEET

We assume a total capital requirement funded by debt (60%) and equity (40%). Interest rates are assumed constant at 6.5% p.a for the term of the analysis and debt is repaid over a 10 year period starting at year four when the kiwifruit revenue stream starts to increase. This is not reflective of funding ANZ is able to provide for any borrower, which will be subject to many factors not considered here.

CAPITAL INVESTMENT AND FUNDING BY SUNGOLD CONVERSION SCENARIO

Source: ANZ Analysis



REVENUE, EXPENSES AND OTHER ASSUMPTIONS

The following table summarises the revenue, operating expenses and other assumptions which underpin our financial modelling of a new SunGold orchard. These assumptions are identical for the HC, GM and GH scenarios.

REVENUE, OPERATING EXPENSE AND OTHER ASSUMPTIONS FOR HC, GM AND GH SCENARIOS

Source: ANZ Analysis

Consideration	Assumption	Comment
Revenue		
Yield	14,000 trays per hectare Zespri long run assumption is 13,500-14,500 trays per hectare.	Rising strongly since 2011 but projections to 2027 show slower pace of growth. Raised from 13,500 trays per hectare assumption in 2018 Kiwifruit report edition.
OGR per tray/ha	\$8.50 OGR per tray Combined with yield assumption, implies \$119k OGR per hectare. Zespri long-run assumption is \$8-\$9.00 OGR per tray and \$94,500-\$135,000 OGR per hectare.	Zespri is taking a cautious approach in increasing SunGold supply to manage potential risks to the OGR. Post-harvest cost increases may also put OGR at risk. Raised from \$8.00 OGR per tray assumption in our 2018 Kiwifruit report edition.
Operating expenses		
Growing expenses (wages included)	\$40k per hectare	Includes wages, pollination, fertiliser and lime, weed and pest. Raised from \$36k per hectare assumption in our 2018 kiwifruit report edition.
Wages	\$23k per hectare	Wages are expected to increase due to minimum wage regulation combined with labour shortages.
Other assumptions		
Capital injection	Interest rate is 6.5% p.a Debt/equity mix is 60/40 (debt is repaid over 10-year period) Additional cash buffer of \$100k.	

REVENUE

The chart below shows the projected OGR per canopy hectare profile for SunGold in our modelling.

In the Greenfield development scenarios (both GM and GH) we assume vines are planted into the ground. We base our resulting OGR profile off a static tray price of \$8.50 and static trays of 14,000 per hectare once at 100% yield. While static prices and yields are not the case in reality, the example aims to highlight how a scenario can be arrived at for a forecast revenue profile. Prices are based on the long-term Zespri outlook.⁽²⁾

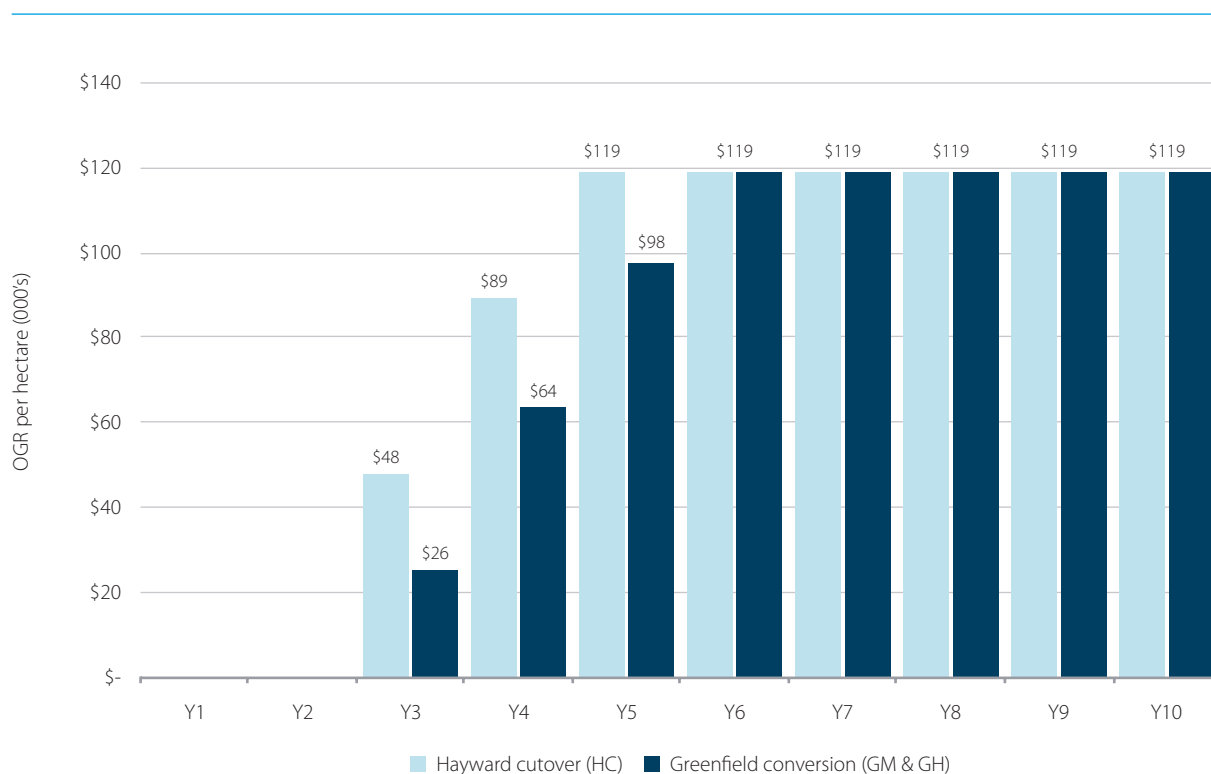
Under our Hayward cutover scenario the new SunGold orchard achieves maturity at year five (versus year six for the GM and GH conversions). However, some growers have achieved an accelerated maturity of their new

developments (year two-three) by planting grafted plants coupled with timely canopy management and attention to detail. However a range of factors may have led to this accelerated maturity and may not apply to other growers. This scenario is not included in this analysis.

Importantly, there is a lag until the kiwifruit vines are able to yield their full revenue potential. This means that any development would need to be appropriately capitalised, or have another source of income to support outgoing cash flows for the first few years.

FORECAST SUNGOLD OGR PER HECTARE BY SCENARIO⁽¹⁵⁾

Source: ANZ Analysis



(2) Zespri, 5 year Outlook, November 2017

(15) Note that vines may yield significantly more or less based on prevailing conditions.

CASH FLOW

The chart below summarises the Greenfield medium (GM) cost scenario cash flow profile.

Over the course of the first year, the cost of the land (\$125k), licence (\$250k) and orchard development (\$150k) are incurred. This is deducted from the opening capital of \$625k, leaving a balance of \$100k. Further, growing costs of (\$6k) and interest (\$24k) are incurred in year one, leaving a closing cash balance of \$70k.

To model the ongoing operational cash flows we have assumed that growing costs will increase in line with kiwifruit revenue, moving to \$40k annually as the vines reach 100% yield.

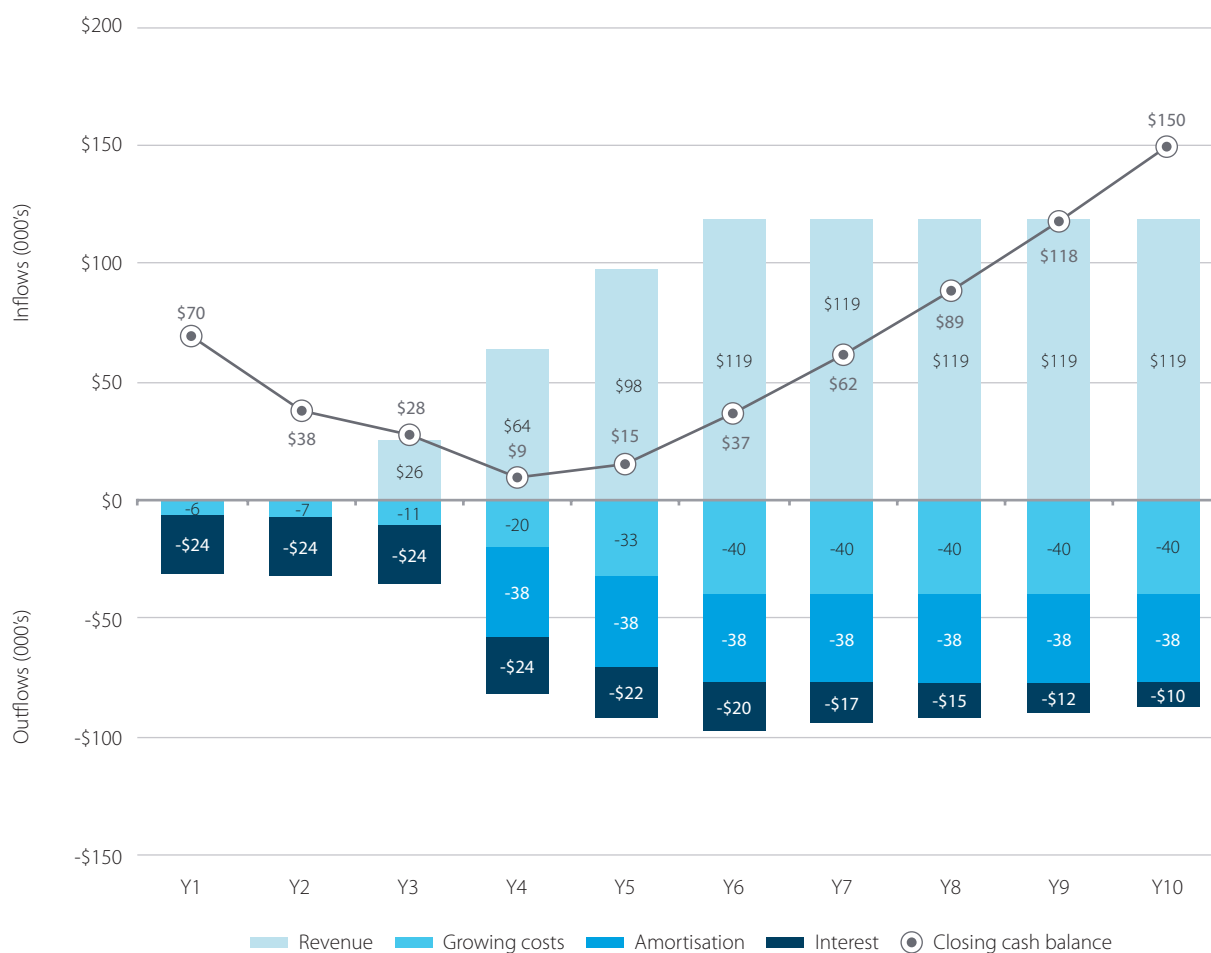
Interest is paid at 6.5% p.a on the outstanding loan balance and annual debt repayments of \$38k begin at year four.

As previously noted, additional expenses can accrue in the first few years until the kiwifruit vines start to yield revenue in excess of their ongoing annual costs. These can include interest, amortisation, unforeseen development costs or any other additional capex over and above the initial orchard development. These costs will vary by orchard.

All other sources and uses of funds are not considered in our example (e.g. tax, further capital raisings, etc.).

CASH FLOW FORECAST PER CANOPY HECTARE – GM COST SCENARIO

Source: ANZ Analysis



CASH FLOW COMPARISON (HC, GM, GH SCENARIOS)

We compare the cash flow profiles of the HC, GM and GH scenarios. This analysis differs from our 2018 edition, mainly due to the increase in conversion costs based on grower data provided.

We also compare each of the above scenarios with the closing cash flow balance of an unconverted Hayward orchard. Our assumption for the unconverted Hayward orchard is a tray yield of 11k per hectare, OGR per tray of \$5.50 and \$38k per hectare in growing costs.

Year 10 in our model shows the closing cash balance for the HC scenario at \$369k, GM scenario at \$150k and GH scenario at \$77k. The unconverted Hayward orchard closing cash balance is \$225k.

On the surface, the cash flow performance of HC appears to significantly outperform the other scenarios. However, it is important to highlight that our HC scenario does not consider any prior costs relating to purchasing or developing an existing Hayward orchard (including land and infrastructure investments).

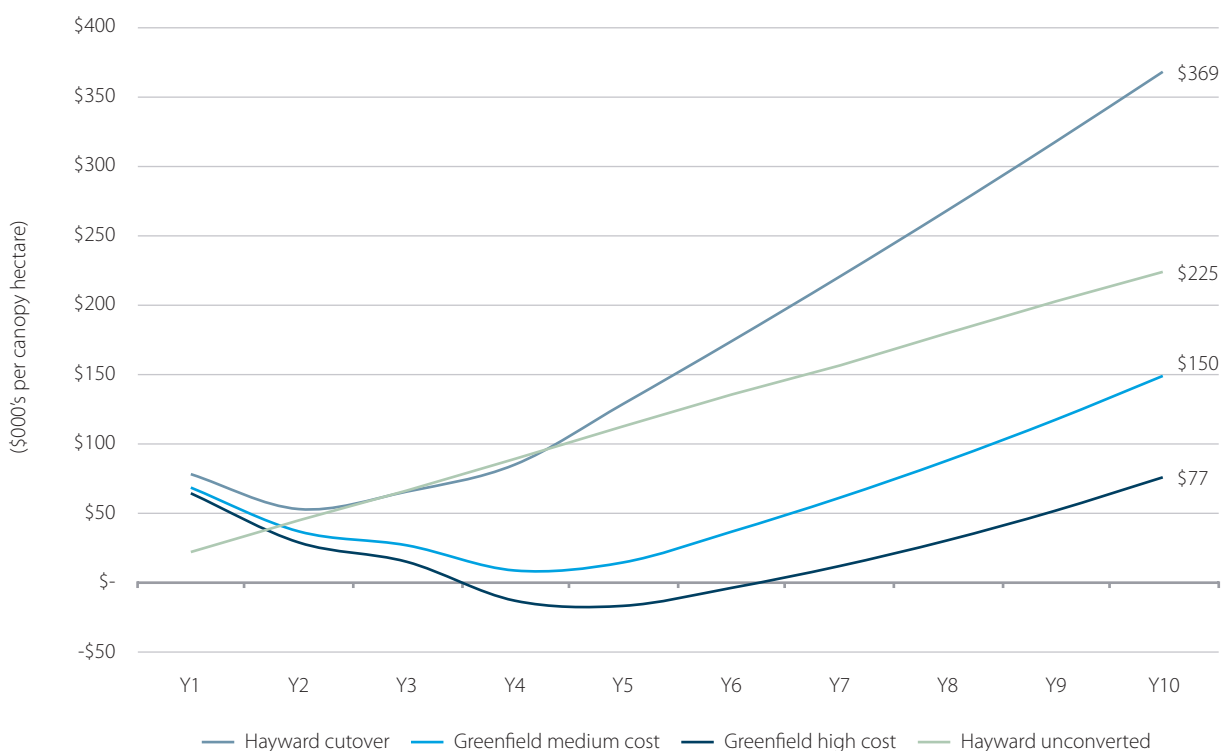
These costs would need to be taken into account to provide a like-for-like comparison with the GM and GH scenarios (for example if the land was already owned under the GM and GH scenarios, the cash flow profiles would show a higher closing cash balance at year 10).

The difference between the GM SunGold development cost and the Hayward unconverted in year 10 is \$75k (\$225k vs. \$150k). The development cost difference between the GM (\$525k) and GH (\$625k) scenarios is \$100k, which translates into a \$73k closing cash flow balance gap in year 10.

We provide a sensitivity analysis of the closing cash flow balance in year 10 in Appendix 2 at the back of the report. The sensitivity analysis tests the closing cash flow balance in year 10 for different revenue, growing costs and development costs scenarios.

CASH FLOW CLOSING BALANCE COMPARISON⁽¹⁶⁾

Source: ANZ Analysis



(16) It should be pointed out that the cash-flow profiles are not directly comparable to each other due to different capital structures, yield profiles and development costs required.

6. CONSUMER MARKETS AND OTHER INDUSTRY THEMES

ORGANIC SUNGOLD

Zespri provides licences for organic SunGold which are certified to leading organic standards by Bio Gro NZ.

Zespri is set to allocate 50 hectares of organic SunGold licences annually out to 2022, with 50 hectares already tendered in 2018 (250 in total). Around 80% of organic kiwifruit sales are to the North American, European and Japanese markets.

Potential investors may be drawn to the comparatively lower licence cost. The 2018 median price for organic SunGold licences was 41% below the median SunGold licence (\$108k compared to \$265k).⁽⁷⁾

Producing organics comes with different conditions, challenges and risks. Growers looking into organics need to take into account many factors such as:

- Potentially lower yields and more variability
- Restricted production practices
- The risk that the fruit does not meet Zespri's standards and the cost to convert the orchard back to another variety.

Orchardists who wish to take advantage of this opportunity must give consideration to the types of chemicals they are permitted to use on plants to be certified organic (for example, Hicane cannot be used with organics).

HEALTH AND SAFETY

Changes to the Health and Safety at Work Act 2015 shifted the focus from hazard management to proactively identifying and managing risks. Recent incidents, court cases and changes have further highlighted the implications for all participants in the kiwifruit industry.

As a result, health and safety education within the industry has increased to identify and manage risks as well as help to clarify roles and responsibilities where there are multiple parties involved. Zespri and NZKGI have a shared goal of making the kiwifruit industry safer for all workers and work collaboratively on providing material to help guide and educate health and safety expectations throughout the industry.

BRAND REPUTATION, MARKETING AND OPERATING MODEL

Zespri have indicated it is upscaling its systems and processes, using data to improve operational efficiency, from ordering fruit to storage, ripening, logistics and delivery. Through the Industry Collaboration Platform project, Zespri expects to provide greater product visibility and traceability through the supply chain.⁽¹⁾

To maintain familiarity with the brand and protect market share, Zespri has established a 12-month kiwifruit supply programme. It is working to increase supply from a relatively low base in Italy, Japan and South Korea through partnership with local growers. While China's kiwifruit production is set to increase, it is consumed locally and has yet to enter the export market.⁽¹⁾

In 2017, Zespri conducted a study across eight overseas markets and uncovered opportunities to better market kiwifruit. For example, in France and Germany, Zespri focuses on in-store advertising rather than radio adverts to better target European consumers.⁽¹⁾

BIOSECURITY RISKS

Growers and investors need to be aware of biosecurity risks which can impact Orchard Gate Returns.

Management and prevention of outbreaks of pests and disease (e.g. Queensland fruit fly, the brown marmorated stink bug (BMSB) and white peach scale) is crucial to the industry's success, especially with a concentration of plantings in a limited geographic area.

BMSB in particular is considered to have an extremely high risk of entry given it can arrive on a wide range of goods or equipment from a number of different countries. Since the start of the current risk period in late 2018, a number of car carriers infested with BMSB were turned away by the Ministry for Primary Industries (MPI).⁽¹⁷⁾

Since then, MPI has been working to reduce the risk of BMSB getting into New Zealand by ensuring that possible treatment of vehicles and equipment occurs offshore.

The New Zealand Institute of Economic Research estimates that a BMSB invasion would cost New Zealand's fruit, vegetable and wine industries more than NZ\$4b in lost export revenue as well as thousands of jobs.⁽¹⁸⁾

Kiwifruit Vine Health (KVH) manages the wider biosecurity readiness and response for the industry. The industry pays a one cent levy per tray for all varieties to KVH to fund the biosecurity programme on behalf of the kiwifruit industry.⁽¹⁹⁾

(7) Zespri, Kiwiflier, May 2018

(1) Zespri, Annual Review, 2017/18

(17) <https://www.kvh.org.nz/vdb/document/104231>

(18) NZIER. 2017. Quantifying the economic impacts of a Brown Marmorated Stink Bug incursion in New Zealand.

(19) www.kvh.org.nz/most_unwanted

CLIMATE CHANGE

Kiwifruit could be hit by more droughts through a combination of higher average temperatures, reduced average rainfall, as well as greater rainfall variability.⁽²⁰⁾

The Ministry for the Environment (MFE) predicts kiwifruit may no longer be viable in Northland by 2050, largely because of warmer winter temperatures.⁽²¹⁾ However, such climate change is less likely to affect SunGold production.

Further research suggests that droughts would not only directly affect production but also potentially weaken plant resistance to diseases.⁽²⁰⁾ For kiwifruit, however, there is mixed evidence on the impact of droughts on the sclerotinia rot (*sclerotinia sclerotiorum*) where droughts were found to both increase and limit the severity of the disease in different cases.⁽²⁰⁾

INNOVATION

Zespri tells us it is trialling two new "red" varieties while continuing to explore breeding and commercialising a new green variety to unlock further growth in the green category. Any new gold variety could be some years away.

We encourage growers to carefully assess the risks of planting new varieties as the performance of the variety in the field and in the market is unknown.

Zespri is also investigating opportunities to extend the packing window for SunGold which would help alleviate potential capacity constraints.

Zespri is undertaking a study into the life cycle of BMSB on kiwifruit to better understand the risk to the industry and how to manage it.

SUSTAINABILITY

Zespri has publicly made strong commitments to sustainability and is undertaking research to better understand the environmental footprint of the kiwifruit supply chain.

The Government has recently formalised its first contribution under the Paris Agreement to reduce carbon emissions by 30% below 2005 levels by 2030. Beyond 2030, the Paris Agreement also invites countries to formulate targets out to 2050. The government is considering two main targets, a 50% reduction of greenhouse gas emissions from 1990 levels and a more ambitious net-zero emissions target.⁽²²⁾

The industry has a number of initiatives to limit its environmental footprint, like ZespriGAP, which is an audited process that compels growers to apply best practice growing methods that minimise the environmental footprint. This certification scheme is based on the internationally recognised GlobalGAP standard.

Zespri tells us that food safety compliance is an increasingly important issue for its customers. Growers need be aware of the requirements and may need to invest in further infrastructure to support compliance.

In recent years the Bay Of Plenty Spray Focus Group, which includes representatives of Zespri, NZKGI, KVH, regional council staff and the public, aims to reduce the effects of sprays on the community, using best practice spraying methods.

TARIFFS

Changes to tariffs and quotas ultimately impact the OGR received by growers.

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) is to eliminate tariffs for key NZ kiwifruit, including duty free access to Japan representing tariff reductions of more than NZ\$25m per year.⁽²³⁾

The Korean tariff rate was down to 15% in 2018, with free access from 2020 onwards under the Korean Free Trade Agreement (FTA). Kiwifruit exports to Korea almost doubled to NZ\$80m in 2018 from 2015 when the FTA came into force.⁽²³⁾

Tariffs will continue to be enforced in a number of NZ's major kiwifruit markets. A free trade deal with the European Union, which imposes an 8% tariff, could offer a \$33m benefit to the New Zealand kiwifruit industry (EU exports were NZ\$417m in 2018).⁽²⁴⁾

SUCCESSION

According to Zespri kiwifruit growers are an ageing population, with 53% over 60 years of age.

The increasing capital requirement of SunGold orchards, with recent sales valuing orchards at or above \$1.0m per hectare, poses an increasingly higher barrier to entry and a succession challenge.

We consider succession plans to be an important part of orchard management and that they need to be put in place sooner rather than later to avoid a surge in orchard liquidity.

(20) Wakelin, S.A., Gomez-Gallego, M., Jones, E. et al. Australasian Plant Pathol. (2018) 47: 101.

(21) www.mfe.govt.nz/climate-change/how-climate-change-affects-nz/how-might-climate-change-affect-my-region/northland

(22) New Zealand Productivity Commission, Low-emissions economy, 2018

(23) Ministry for Primary Industries, Situational Outlook for Primary Industries 2018

(24) Statistics New Zealand, Exports, Harmonised Trade

WRAP UP – ANZ’S VIEW

Global demand for kiwifruit continues to grow. The release of SunGold licences by Zespri is an opportunity to either enter the kiwifruit industry for outside investors or diversify production for existing growers.

The industry faces challenges such as labour availability, water access and other capacity constraints and it is working through a number of initiatives to ensure that growing global demand can be met. Investors and existing growers will need to undertake due diligence to manage the risks identified in this report.

To assist growers and investors that are considering developing a new SunGold orchard, different Greenfield development cost scenarios have been modelled, using the most up-to-date information, to understand the impact on financial performance over a 10 year timeframe.

ANZ has a team of kiwifruit specialists who are available to talk through these concepts to provide a fair, balanced view of each orchard project. Together with your other professional advisers, we welcome the opportunity to discuss this further.



7. APPENDIX

APPENDIX 1: BREAKDOWN OF POTENTIAL INFRASTRUCTURE INVESTMENT

The new SunGold financial model compares the financial performance of two Greenfield scenarios, GM and GH, which assume different orchard infrastructure investment costs for a new SunGold orchard.

In this appendix we provide a breakdown as well as the range of potential investment costs for a new SunGold orchard on a per canopy hectare basis for each component.

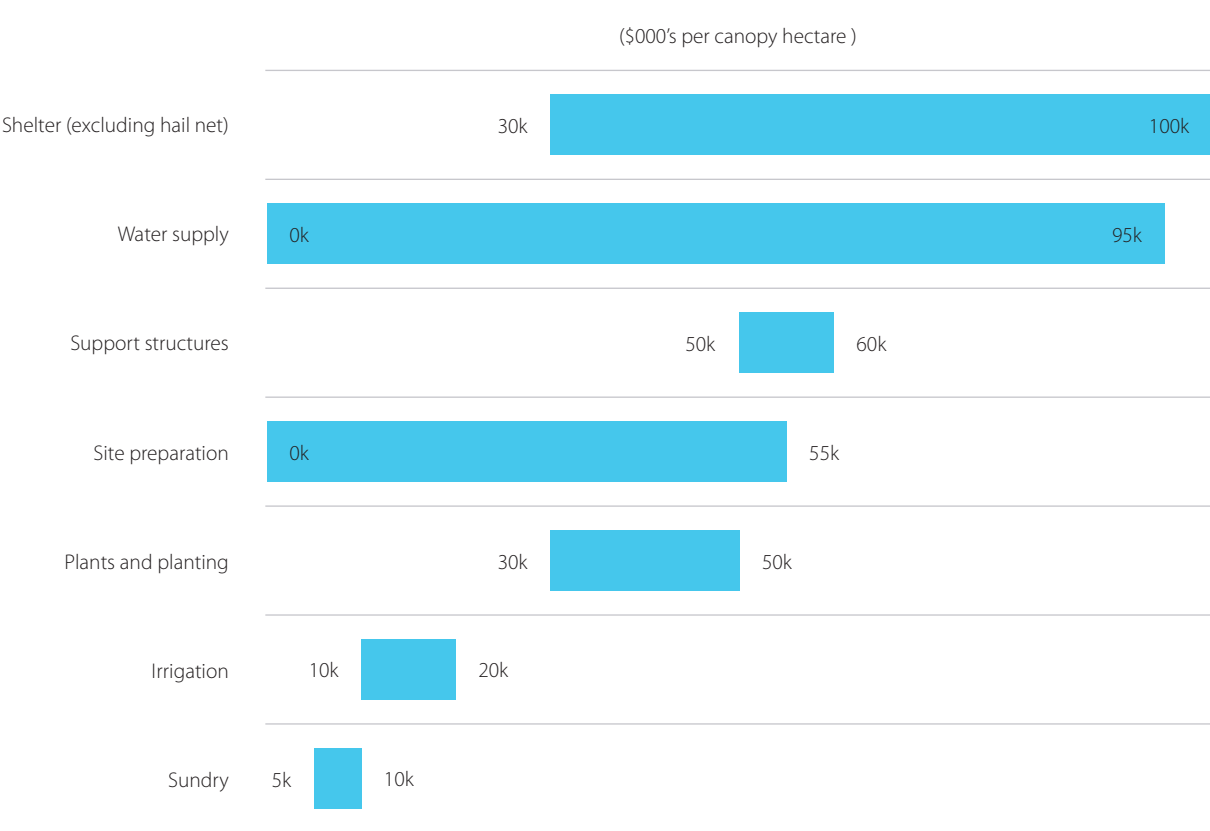
The variation in infrastructure investment cost is largely driven by shelter, water supply and site preparation, as they have the widest range and highest potential investment cost on a per canopy hectare basis.

Support structures, plants and planting are also expensive infrastructure investments. However, these generally have tighter potential cost ranges.

Irrigation and sundry infrastructure are less expensive and have a \$5k-\$10k per hectare range per canopy hectare.

POTENTIAL INFRASTRUCTURE INVESTMENT COST RANGES

Source: ANZ Analysis



APPENDIX 2: NEW SUNGOLD FINANCIAL MODELLING RESULTS SENSITIVITY (GREENFIELD CONVERSION)

It is important to highlight that financial performance is subject to changes in both operational profit and development costs. The analysis below looks at the sensitivity of the closing cash flow balance at year 10 based upon different scenarios. This is done in two steps.

Step 1: We first provide a sensitivity of operating profits per canopy hectare based on different revenue (OGR) and growing cost combinations. Under the scenarios outlined, operating profit ranges from \$35k per hectare to \$123k per hectare, with \$79k per hectare being the assumption used for our analysis provided earlier in the report.

Step 2: We then take the operating profit range highlighted in step 1 and provide a sensitivity of the closing cash flow balance at year 10 based upon different infrastructure investment costs.

In the second table, two closing cash flow balance sensitivities are highlighted in bold (\$149,583 and \$76,773). These relate to the closing cash flow balances for the GM and GH scenarios provided earlier in the report in the cash flow comparison section.

This sensitivity testing shows that the cash flow of a new SunGold orchard is highly sensitive to operating profit falling, particularly for orchards which require a higher development cost per hectare. As such, significant emphasis should be given to keeping development costs as low as possible and how the operating profit budget is arrived at.

OPERATING PROFIT SENSITIVITY

Source: ANZ Analysis

	Orchard Gate Return per canopy hectare					
		\$85,000	\$102,000	\$119,000	\$136,000	\$153,000
Growing costs per canopy hectare	\$30,000	\$55,000	\$72,000	\$89,000	\$106,000	\$123,000
	\$35,000	\$50,000	\$67,000	\$84,000	\$101,000	\$118,000
	\$40,000	\$45,000	\$62,000	\$79,000 Report assumption	\$96,000	\$113,000
	\$45,000	\$40,000	\$57,000	\$74,000	\$91,000	\$108,000
	\$50,000	\$35,000	\$52,000	\$69,000	\$86,000	\$103,000

CLOSING CASH FLOW BALANCE SENSITIVITY (YEAR 10)

Source: ANZ Analysis

	Operating profit per canopy hectare					
		\$35,000	\$57,000	\$79,000	\$101,000	\$123,000
Infrastructure investment per canopy hectare	\$150,000	-\$143,184	\$3,200	\$149,583 GM scenario	\$295,967	\$442,350
	\$175,000	-\$161,386	-\$15,003	\$131,381	\$277,764	\$424,148
	\$200,000	-\$179,589	-\$33,205	\$113,178	\$259,562	\$405,945
	\$225,000	-\$197,791	-\$51,408	\$94,976	\$241,359	\$387,743
	\$250,000	-\$215,994	-\$69,610	\$76,773 GH scenario	\$223,157	\$369,540

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