

Final Report

Australian Olive Industry Benchmarking Program

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Australian Olive Industry Benchmarking Program – OL16001

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Content

Content	3
Summary	4
Public summary	
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Keywords	5
Introduction	6
Methodology	7
Outputs	11
Outcomes	12
Monitoring and evaluation	15
Recommendations	17
Refereed scientific publications	19
References	20
Intellectual property, commercialisation and confidentiality	21
Acknowledgements	22
Appendices	23

Summary

Rising global trade has increased pressure on olive producers to achieve a high-quality product at a competitive price. This is evidenced with the recent commissioning of the International Olive Oil production costs study by the International Olive Council where they sought to understand different production systems and the resulting financial performance on a \$EUR per kilogram bases, i.e. benchmarking regional performance.

Australian olive growers have responded by identifying the need for best practice in grove management for the industry to remain competitive, specifically a focus on the key metrics of: productivity, quality and profitability. Subsequently, both new and experienced grove managers need access to relevant benchmark data to provide an ongoing framework for identifying and acting on these key drivers.

RM Consulting Group (RMCG) were engaged to undertake the benchmarking of the Australian olive industry through the use of the “BizCheck” method. The BizCheck method has been developed by RMCG from economic and financial farm surveys carried out over a range of agricultural and horticultural industries. Data collection was based on annual financial statements (tax return data) and physical farm information.

Data was collected from 14 businesses across Eastern Australia for the 2015/16 and 2016/17 financial years. Benchmarking is only possible with growers who are willing to participate and provide their data. Participation in the benchmarking project was more valuable to businesses who participated in the study, as they were able to see exactly how their performance compared to the industry and they received a customised report on their performance and key issues to improve performance.

This benchmarking project concluded that of the olive businesses in the industry that engaged in this project, many:

- are small scale and do not generate a profit
- have insufficient income per hectare, mainly due to low yield performance
- are spending no or very little money on water, fertiliser and pest and disease control, some of these are key constraints to yield
- have high operating costs, making it difficult to achieve profit and/or adding risk in lower yield scenarios
- have overcapitalised in machinery, or have too small a scale of production for the fleet
- have a low or negative return to capital, making sustainability and viability difficult
- have a cost of production that is too high.

Conversely, there are a small number of businesses in the industry that have mastered these issues and are achieving a profit with a sustainable and viable outlook. The large spread of production and financial performance is typical of many industries.

Fundamentally, each olive business needs to be profitable in order to be sustainable and viable. Short-term losses can only be endured for a period of time.

Keywords

Olive, benchmarking

Introduction

The Australian olive industry is a \$210 million industry comprised of approximately 900 growers, producing an estimated 107,000 tonnes of olives per annum. 95% of olives are grown for the processing oil market. The remainder are sold as table olives for fresh consumption. Only a few growers are considered large scale, that is greater than 80 hectares, with the majority of growers servicing boutique and niche markets on less than 20 hectares of production. The majority of olives are produced in Victoria, with 63% of the production volume. This is followed by Western Australia (17%), South Australia (11%) and New South Wales (9%).

Rising global trade since has increased pressure on olive producers to achieve a high-quality product at a competitive price. This is evidenced with the recent commissioning of the International Olive Oil production costs study by the International Olive Council where they sought to understand different production systems and the resulting financial performance on a \$EUR per kilogram bases, i.e. benchmarking regional performance.

The Australian olive industry have identified benchmarking as a priority issue, with the development of an industry-wide system to collect and analyse production data (benchmarking) included as strategy 1.3 in the industry Strategic Investment Plan (2017-2021).

RM Consulting Group (RMCG) were engaged to undertake the benchmarking of the Australian olive industry through the use of the “BizCheck” method. The BizCheck method has been developed by RMCG from economic and financial farm surveys carried out over a range of agricultural and horticultural industries. Data collection was based on annual financial statements (tax return data) and physical farm information.

Measuring cost of production is fundamental to determining where costs can be reduced to improve profit. In horticultural industries this is not straightforward as most costs are spread over a range of varieties that the business produces. The use of the BizCheck method enables participating growers to use the resulting benchmarks to identify the strengths and weaknesses of their enterprise and, therefore, target management changes to build on strengths and eliminate weaknesses.

Methodology

Recruitment

The original program design was based on obtaining up to 20 physical and financial datasets from growers to enable the creation of industry benchmarks. To enable effective comparative analysis for industry benchmarking, a market segmentation was proposed, based on area of production. The criteria for the market segmentation and grower targets included:

- Large scale growers – greater than 80 hectares – target of 6 participants
- Mid-scale growers – between 20 – 79 hectares – target of 8 participants
- Boutique growers – less than 19 hectares – target of 6 participants

Participant recruitment into the benchmarking program occurred through several channels including:

- Establishment of a Program Reference Group, which included lead growers from each of the market segment categories to provide leadership and endorsement of the program and to promote participation in the project amongst peers.
- Paid advertising and editorials in the Australian Olive Association publications including Friday Olive Extracts e-newsletter and Australian and New Zealand Olivegrower and Processor Magazine.
- Trade stall and brief presentation at the Olive Industry National Conference, 2017 in Adelaide.
- Targeted phone calls to facilitate recruitment based on grower referrals.

As a result of these recruitment approaches, 26 growers were directly engaged in the project representative of small, medium and large businesses. Following extensive consultation of this database of 26 participants, only two complete datasets were obtained.

Grower participation was challenging from the onset which triggered an internal review to identify the barriers to grower participation in the project, and whether management strategies could be employed to manage the identified barriers. The review comprised of key informant interviews with 10 grower and industry stakeholders to identify the challenges with the current project delivery methodology and recommend mitigation strategies that may be employed to address these challenges. The results of the review were presented to the Olive Strategic Investment Advisory Panel (SIAP) in March 2018, with the recommendation from RMCG as to not proceed with the project.

Despite recognition of the implementation challenges by the SIAP, continuity of the project was supported with RMCG to continue to deliver the project with some minor re-design of the project delivery. Key project variations of the delivery included in the redesigned of the project delivery included a reduced emphasis on financial data collection and an increased reliance on lead growers to leverage data collection. The broader industry objectives and alignment of the project outcomes to the Strategic Investment Plan remain unchanged.

The revised recruitment approach succeeded in securing a total of 14 datasets from businesses across Eastern Australia for the 2015/16 and 2016/17 financial years. The success of the revised approach was largely underpinned by the facilitation of lead growers on the industry SIAP. These lead growers made a significant impact by directly recruiting and facilitating introductions in their local region.

A positive experience in the program from some of these participants resulted in a snowballing effect for recruitment of other growers, resulting in 14 datasets being obtained. The data was obtained through a combination of direct on-farm visits by the project team and remote data collection through phone calls and emails.

Data collection, analysis and reporting

A range of business physical and financial data was collected to be assessed through the BizCheck model. The data collected is outlined in Table 1.

Table 1: Benchmarking data collection categories and measures

Category	Measure
Farm system	<ul style="list-style-type: none"> • Number households supported by the business • Number of owners (FTE) not included in wage bill • ML used for irrigation on olives • Total area irrigated olives • Total dryland area of olives • Total farm area including dryland • Area olives under 6 years old • Area olive more than 25 years old • Olive trees per ha density • Total tonnes of olives sold • Tonnes sold retail (as oil or table olives or other) • Tonnes processed to oil • Litres oil produced from this tonnage • Tonnes sold as table olives • Tonnes sold as unprocessed olives
Production	<ul style="list-style-type: none"> • 1st largest variety by area • average distance between pollinator and this variety • 2nd largest variety by area • average distance between pollinator and this variety • 3rd largest variety by area • average distance between pollinator and this variety • Distance to processing facilities on farm (nil if none on farm) • Distance to processing facilities off farm • Is majority area handpicked (H), contract mechanical (C) or own harvesters (O)? • Frequency of comprehensive soil and or petiole testing? • Main Irrigation scheduling method - soil based (S), ET (E), Calendar (C) • Description of food safety system used • Description of main product- wholesale (W), retail (R), tourism (T), organic (O) • Percentage of grove harvested this year (add notes if less than 100%) • Estimated maximum yield per hectare on a portion of the grove (add notes if required – why?) • Estimated minimum yield per hectare on a portion of the grove (add notes if required – why?)

Category	Measure
Financial	<ul style="list-style-type: none"> • Total business income • Sales from all olive (from tax return) • Sales retail (as oil or table olives) • Sales processed to oil • Sales sold as unprocessed olives
Non-Farm income	<ul style="list-style-type: none"> • Non-exertion income (investments, rent) • Exertion income (wages)
Expenditure	<ul style="list-style-type: none"> • Olive levies & processing costs (if inc. on tax return). Inc. materials labour, electricity etc. • Electricity (excluding processing) • Water and drainage rates • Sprays/chemicals/ IPM consultants • Fuel • Repairs & maintenance of machinery • Fertiliser • Employed harvesting labour/contractors (total cost) • Employed non-picking labour / contractors / consultants (total cost)
Annual cost of capital	<ul style="list-style-type: none"> • Expenditure on new & replace irrigation & trees incl. in P&L • Depreciation (inc. packing equip if in P&L) • Interest & bank charges (excluding principal payments) • Leasing expenses (include machinery & land rent) • Payment to partners/owners incl. super (if in P&L as expense) • Total expenditure (as shown on P&L)
Capital value	<ul style="list-style-type: none"> • Value of property • Clearing sale value of farm plant & equipment (inc. packing equip) • Total farm liability (inc. overdraft, leases, HP, stock firm, NOT book entries) • Olive developed land value per ha • Olive development cost per ha • Net non-farm assets
Lifestyle	<ul style="list-style-type: none"> • Total number days slept off farm (as a family) (all households) • Total number days spent on training (owners)

The data collected was entered and analyzed through the RMCG BizCheck model to determine performance indicators for the industry. Each grower that participated in the benchmarking project received an individual tailored report to show how their business compared to the low 33% of the industry, the middle of the industry and the high 33% of the industry. In addition, a list of customised recommendations for each business was provided to show opportunities to improve performance for that individual business.

Confidentiality

All data collected through the project has been treated in confidence. The data supplied by growers contains commercial in confidence information. As such, individual businesses cannot be identified and the results can only be reported in aggregate.

Outputs

The two outputs for the project were:

- An industry final report has been produced through the project and provided in Appendix One.
- Individual business reports have been prepared and provided to participating businesses. These reports are commercial-in-confidence and will not be published.

Outcomes

The data recorded from the benchmarking surveys was validated, collated and analysed to provide insights for the individuals who participated, but also some broad industry commentary on the state of performance within the industry. ***It is anticipated that the industry will use this information to inform future management practices.***

The datasets for 2015/16 and 2016/17 were similar. As such, commentary is provided below across both production years as the messages are consistent.

Physical performance data

Scale. The benchmark data shows a large number of smaller scale Olive producers participated in the project.

Olive businesses operating at small scale find it difficult to achieve profit unless very high prices and high yields are achieved through access to niche markets. The majority of businesses that participated in the project were smaller than 20 hectares, which does represent a significant number of industry participants. RMCG has suggested that a scale of approximately 80 hectares is required to achieve efficiency of production for both labour and machinery utilisation and to return sufficient profit to support a growing business.

Price per tonne. The price per tonne achieved is highly variable. Lower values were around the \$600-\$800 per tonne, and higher values were in excess of \$8,000 per tonne.

This range represents different business models for both oil and table markets with direct to consumer sales achieving a price premium, albeit with typically lower volumes. The price per tonne is only a component of income and needs to be assessed in context of yield. Price per tonne is likely reflecting the specific market a grower can access and the quality of fruit produced.

Yield per hectare. Yield per hectare is highly variable with a range of 0.1 through to 8.0 tonnes. Yield is a key driver of profit. RMCG has suggested that a minimum of 2.0 tonnes per hectare is required to achieve a profitable business. Yield may also be related to market access for smaller growers, i.e. some growers may be reluctant to grow more olives per hectare if they are unable to process or sell the crop. Thus, creating a yield ceiling that is a result of market access, machinery capacity or labour capacity, not necessarily due to physical production limits.

Oil yield per hectare. Olive groves producing oil reported an enormous range of production from 50 litres through to 1,800 litres per hectare. Oil extraction levels were a little variable; however, the main driver of the variable oil yield is in fact that of fruit yield per hectare.

Water and drainage rates. One key feature in the benchmark dataset is that of businesses that are spending no money on water (irrigation) and drainage to drive productivity. A common theme is that the low and middle performing datasets had zero expenditure on these activities.

This suggests that water and drainage is a key barrier to driving productivity in the industry as water is a key driver of production in all agricultural systems. Insufficient water, especially at flowering, fruit set and fruit growth stages will impact yield, as will waterlogging in locations that are subject to high rainfall and heavy soils. It is likely that these issues are limiting productivity in the industry.

Pest and disease expenditure. Similar to the previous item, there are numerous olive businesses that are spending no funds on pest and disease management.

This issue is likely to be limiting productivity, depending on the specific pest/disease in question.

Fertiliser expenditure. Similar to water and pest and disease expenditure, there are numerous olive businesses that are spending no funds on fertiliser. With each harvest that occurs, nutrients are exported from an Olive grove.

If no money is spent replacing the exported nutrients, declining productivity will occur over time.

Water use. Water use for irrigated groves shows a range of 0 (the low 33% of businesses) through to 3.0 (the high 33% of businesses) megalitres per hectare.

Water and soil water availability is a key driver of productivity and it is likely that many olive groves are insufficiently irrigated to generate their potential for production, hence limiting profit. A small amount of additional money spent on irrigation water and pumping that water can achieve significant additional production in a grove, especially where water is limiting production.

The physical performance data shows a large range of: scale, yield, price per tonne and physical inputs applied to businesses. As such, we would expect to see a wide range of financial outcomes that reflect these different

management approaches. Businesses that have focussed on necessary scale, high income and a modest cost structure will likely achieve a good financial outcome, where as those that haven't, will likely result in a loss

Financial performance data

Income per hectare. Income per hectare is a function of yield (t/ha) x price (\$/t). The benchmark data shows that many businesses are operating with an income below \$5,000 per hectare, however the better performing businesses are achieving \$15,000 + per hectare income.

High income per hectare can either be achieved by high yield or high price, or some combination of both profit levers. The method a business adopts to achieve high income per hectare, such as 2.0t/ha at \$5,000/t of niche product (\$10,000/ha) or 10.0 t/ha of bulk at \$1,000/t is determined by the market each business supplies. The majority of businesses in the dataset were achieving below \$5,000 per hectare, and will be unlikely to create a profitable result.

Each business needs to examine its yield and price to achieve \$10,000 + income per hectare in order to achieve a profitable outcome.

Total farm income. A significant range of farm incomes exists; \$12,000 (low 33%), \$50,000 (middle) through to \$1.4m (high 33%) shows that many businesses are operating at small scale and likely to be unviable once all the costs are deducted.

Income is only one component of financial viability; however, a high income provides more opportunity for profit and sustainability than a low income.

Farm operating costs as % of income. This measure shows how much money remains to service overhead and finance costs in a business after the variable costs are deducted from income.

In horticulture it is an objective to achieve <50% of variable costs as a ratio to income.

This dataset showed middle level producers at 80–100% and the high level (i.e. the worst) at 230%, i.e. their variable costs were double their total income. Low, or modest cost producers were at 30–60%, this allows margin to service depreciation and finance costs and make a profit.

Businesses with low income and high cost structure are unviable in the long term. A small number of businesses had an appropriate cost structure.

Operating surplus. This measure is a function of the above % indicator. It shows that the low 33% were operating with a surplus of -\$200,000 through to the top 33% with an operating surplus of around +\$400,000. Where there is no operating surplus, there is no opportunity to meet finance costs, depreciation or pay owners labour and create a return on capital.

Machinery investment. Investment in machinery should be tailored to the long term expected income. Many horticultural businesses over capitalise on machinery and this impacts profit performance. As a guide, the current value of all machinery should be approximately equal to the expected annual income of the business. The benchmark data showed a large spread of outcomes, some businesses appeared to have insufficient equipment, whereas others appeared to be significantly over capitalised.

Scale is also a key driver of this ratio; a larger scale allows all machinery to work longer hours to achieve productivity and efficient use of capital.

Return on capital. This is a key measure for total business performance. It shows the net profit to a business as a percentage of the assets under management.

The range, as expected, is variable and shows that many olive businesses are unviable whereas a few were quite profitable.

The low 33% of businesses had a return on capital (ROC) of -20%, middle at -4%, through to the high 33% of businesses at around 15%. Above 7% is typically required for sustainable longevity in an industry.

EBIT. A common metric of business performance is earnings before interest and tax (EBIT). The bottom 33% of industry was at -\$400,000, the middle at -\$80,000 and the high 33% at +\$360,000.

Again, it is only a small number of businesses that are achieving a positive EBIT, let alone positive EBT (earnings before tax) after interest and finance costs are deducted.

COP per hectare. Cost of production per hectare shows that low cost producers are achieving a total cost of around \$6,000 per hectare, the middle at \$12,000 and the high cost producers around \$25,000 per hectare.

A cost of production must be lower than the income available in order to achieve a profit and remain viable. Many businesses have a cost structure that is simply too high, and this may be a function of scale. It is also important that a business does not reduce costs that drive productivity, such as: irrigation, fertiliser and pest and disease control, in fact spending more on these items will assist in reducing financial losses.

COP per tonne. Cost of production per tonne shows that low cost producers are achieving a total cost of around \$1,500 per tonne, the middle at \$6,500 and the high cost producers up to \$49,000 per tonne.

The financial performance indicators tell a similar story to the physical indicators, that is, a large number of businesses are unviable. A small number of businesses are quite profitable. The key influence that is impacting this performance is income per hectare. With insufficient income per hectare, there is little that can be done to create a profitable outcome.

Monitoring and evaluation

Challenges

There were some challenges in achieving grower participation in this project. Some larger scale growers were concerned with supplying commercial in confidence information. Other growers were uninterested, and many growers simply lacked the necessary records of physical and financial data to participate, despite their interest.

An internal review was undertaken after failure to achieve targeted participation levels. Feedback during this review resulted in the recommendation that RMCG discontinue the project as it would be difficult to achieve the necessary level of participation from medium and large-scale olive producers.

Despite these challenges, this initial benchmarking for the Olive industry has shown some key insights into issues for the industry and can provide insight as to where future levy funds may be spent to assist the industry.

Key evaluation questions

Due to the challenges with data collection and participation during the delivery of the project, the project key evaluation questions have been addressed through a reflection process by the project team, summarised as follows.

Impact

What has changed or is different as a result of the industry benchmarking undertaken, either positive or negative? e.g. extent of change to knowledge, skills, attitudes, management practices or businesses/organisations (operational or economic)

Feedback from growers who participated in the benchmarking exercise was generally positive. The project was a useful external validation tool for the majority of participants. Individual business results were not a surprise for most participants, but there was a great level of interest in how they compared to the rest of the industry.

Some growers, particularly those of a smaller scale, benefited greatly from the exercise and indicated they would use the findings from the cost of the production to immediately change their management practice.

Effectiveness

To what extent were the planned industry benchmarking activities achieved?

Despite the initial challenges in recruitment and participation, the revised program delivery achieved sufficient engagement to produce the industry benchmarks. The participation number of 20 was set to provide a target, with the actual 14 datasets sufficient to establish the benchmarks produced. Greater participation of large to medium producers would have strengthened the results, however, the project has delivered on its original objective to establish industry benchmarks. Additional participation would be unlikely to alter the key findings of the project.

Appropriateness

To what extent did the activities and the way they were undertaken align with stakeholder needs and expectations?

Of the growers who did participate in the project, feedback was generally positive. Very positive feedback was received from a number of participants during the one-on-one data collection consultation with RMCG and following receipt of the individual tailored business reports.

The project did not deliver on its original intention to engage with the large grower category (actual was 15% of participants), consequently it is difficult to determine whether the project met the expectations of this audience. Feedback received from growers interviewed from this category during the internal review suggested the barriers to participation of some businesses was the knowledge that not all businesses were participating in the project. This suggests the lack of participation was reflective of a lack of leadership within the industry to champion this industry identified priority project. There also exists the valid concern of extrapolation of commercial in confidence data that could become available to the supply chain.

Recommendations received from the industry association during the internal review was that if growers had not engaged with the project during the first round, it should be concluded that the industry lacks interest in the

project and the project should not continue.

Subsequently, while the project has delivered for small to medium producers in the industry, the extent to which the project deliverables has met the expectations of large growers and the industry association is unknown.

Efficiency

To what extent did the program activities achieve the desired result within budget and timeframes?

The project delivered industry benchmarks within the project timeframe and budget. Additional benchmarks may have been possible with additional resources for greater one-on-one consultation.

This finding is supported by the successful outcomes following the program redesign to undertake in-person rapid data collection within a target geographic region following strong leadership from a SIAP grower through a referral process.

Legacy and sustainability

To what extent will the project have a lasting impact on the sustainability of the Australian olive industry? What, if any, lessons have been learned that could improve the success of future projects?

The project has delivered initial industry benchmarks for the Australian olive industry. The application and adoption of these benchmarks are in the hands of the industry to determine their use.

Key lessons established during the delivery of this project for consideration in future projects include:

1. Improve collaboration with industry associations and increase the capacity of industry associations to determine the priority benchmark needs of industry
2. The usefulness of champion growers to facilitate the participation of other growers
3. The benefit and value of tailored customized reports to provide feedback to businesses on their own performance, and their performance in relation to industry benchmarks.

Recommendations

Each olive business needs to be profitable in order to be sustainable and viable. Short-term losses can be endured for a period of time. The equation which represents viability for agriculture and horticulture is represented as:

$$\text{Yield} \times \text{Price} - \text{Costs} = \text{Profit}$$

Yield (t/ha) and Price (\$/t) are powerful as they are multipliers. High yield and high price are very effective at creating profit. A mid-range yield and mid-range price can create a profitable outcome. If either yield or price is very low, it becomes very difficult to achieve a profit.

Costs are subtracted from the multiplied yield and price. A high cost structure means there is less room to move on yield and price, even small impacts to yield (eg a frost event) and price will quickly result in a loss if a high cost structure exists. A low or modest cost structure is important to reduce risk and create ongoing profits. One way to achieve a modest cost structure is through scale of operation. Some costs are critical to driving production and should not be restricted, where those items restrict profitable productivity, such as: fertiliser, irrigation, pest and disease control and pruning.

Profit remains after all costs are paid. The following table of key benchmarks or targets for the Olive Industry allows a quick diagnosis for business performance. A business can achieve profit outside these benchmarks, but it will be more difficult and require more specialisation.

The following benchmarks, outlined in Table 2, are not a 'recipe' for business success, rather they are broad indicators that can help individuals and an industry identify areas of strength and weakness. These strengths and weaknesses can then be used to adjust business models and production systems to improve profit and create robust and resilient businesses.

Table 2: Key benchmarks for the Australian olive industry

Target	Recommended Values	Explanation
Scale	> 80 ha	Scale magnifies profits (also losses) but spreads overheads to generate a low cost of production. Smaller scale can achieve profit, however to achieve machinery and labour efficiency approximately > 80ha is required.
Income per ha of olives	> \$10,000/ha	Income = yield (t/ha) x price (\$/t). There are number of ways to achieve a high income per hectare, either through low yields and very high price such as occurs with value added table olives, or higher yield and a lower price. The top performing businesses are achieving \$15,000+ per hectare income.
Productivity	Water and drainage, Fertiliser, Pest and Disease Management. Greater than zero!	The benchmark analysis showed that many groves are not spending money on irrigation, drainage, fertiliser or pest and disease management. If any of these factors are limiting productivity they could have a ten-fold return on investment and easily create profit.
Operating costs	Operating costs (fixed and variable) <50% of income, suggested <\$5,000/ha	Modest operating costs provide a lower risk business model and allow profit to be achieved. A good target to aim for is having operating costs (all costs excluding finance and machinery) to be no more than half your expected income. It includes variable and fixed costs ¹ , but excludes interest, rent and depreciation.

¹

Some surveyed businesses did not include their fixed operating costs in their total expenditure. For these businesses fixed operating costs were imputed.

Machinery investment	Machinery value / farm income = <1.0	Investment in machinery should be tailored to the long term expected income. Many horticultural businesses over capitalise on machinery and this impacts profit performance. The current value of all machinery should be approximately equal to the expected annual income of the business.
Interest costs	<10% of income and /or debt/income =<1; and/or equity >85% in long term	Interest cost can be used to grow a profitable business, but becomes difficult to service if there is not a high operating surplus. (Income - operating costs)
Return on Capital (%)	>7% excluding any capital gain	Usually difficult for businesses just starting. In order for businesses to remain sustainable and maintain inputs, machinery and productivity achieving a positive return is critical. Many businesses in the benchmark project have a negative return to capital.
Total cost of production per hectare	Total cost of production per hectare (including finance and overheads) needs to be less than \$10,000.	The cost of production must be less than the expected income. Costs include operating, interest and depreciation plus owner's labour. This is a function of achieving a modest cost per ha. Target values per ha are also provided on the report on a per hectare and per tonnage basis.
Total cost of production per tonne	Cost of production per tonne <5,000/t (operating<\$2,500 + interest & depreciation ² <\$2,000 + owners labour ³ <\$500/t)	The cost of production per tonne must be less than the expected price per tonne. This is a function of achieving yield and low cost per ha. Target values per ha are also provided on the report.

Implications for the industry into the future may include research and extension activities that focus on yield and income in olive production, especially on optimisation of existing olive grove performance. This single aspect will then highlight further market, production and management issues that are negatively impacting business performance.

²
³

Including orchard grove depreciation imputed at \$800/ha/y.
Calculated at \$80K per full time equivalent not included in wages operating costs.

Refereed scientific publications

None to report

References

Refer to final report.

Intellectual property, commercialisation and confidentiality

No project IP, project outputs, commercialisation or confidentiality issues to report.

Individual reports for the participating businesses in the benchmarking project are confidential.

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Appendices

Appendix One – Australian Olive Industry Benchmarking Program Final Report

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Australian Olive Industry Benchmarking Program

Final Report

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Table of Contents

Executive summary	1
1 Introduction	3
1.1 BENCHMARKING	4
1.2 THIS PROJECT	5
2 Industry performance	7
2.1 OBSERVATIONS FROM THE BENCHMARK DATASET	7
2.2 YIELD VARIABILITY	9
Appendix 1: 2015/16 dataset	11
Appendix 2: 2015/16 cost of production	14
Appendix 3: 2016/17 dataset	16
Appendix 4: 2016/17 cost of production	19
Appendix 5: Explanation of indicators	21
‘BIZCHECK’ INDICATORS	23
ASSESSMENT METHOD	27

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Executive summary

This section provides key insights and findings of the Olive benchmarking project across 2015/16 and 2016/17 financial years. The key messages enable assessment of olive business performance and assessment of financial sustainability of individuals within the industry.

This benchmarking project has shown that many olive businesses in the industry:

- are small scale and do not generate a profit
- have insufficient income per hectare, mainly due to low yield performance
- are spending no or very little money on water, fertiliser and pest and disease control, some of these are key constraints to yield
- have high operating costs, making it difficult to achieve profit and/or adding risk in lower yield scenarios
- have overcapitalised in machinery, or have too small a scale of production for the fleet
- have a low or negative return to capital, making sustainability and viability difficult
- have a cost of production that is too high

Conversely, there are a small number of businesses in the industry that have mastered these issues and are achieving a profit with a sustainable and viable outlook. The large spread of production and financial performance is typical of many industries.

Fundamentally, each olive business needs to be profitable in order to be sustainable and viable. Short-term losses can be endured for a period of time. The equation which represents viability for agriculture and horticulture is represented as:

$$\text{Yield} \times \text{Price} - \text{Costs} = \text{Profit}$$

Yield (t/ha) and Price (\$/t) are powerful as they are multipliers. High yield and high price are very effective at creating profit. A mid-range yield and mid-range price can create a profitable outcome. If either yield or price is very low, it becomes very difficult to achieve a profit.

Costs are subtracted from the multiplied yield and price. A high cost structure means there is less room to move on yield and price, even small impacts to yield (eg a frost event) and price will quickly result in a loss if a high cost structure exists. A low or modest cost structure is important to reduce risk and create ongoing profits. One way to achieve a modest cost structure is through scale of operation. Some costs are critical to driving production and should not be restricted, where those items restrict profitable productivity, such as: fertiliser, irrigation, pest and disease control and pruning.

Profit remains after all costs are paid. The following table of key benchmarks or targets for the Olive Industry allows a quick diagnosis for business performance. A business can achieve profit outside these benchmarks, but it will be more difficult and require more specialisation.

The following benchmarks are not a 'recipe' for business success, rather they are broad indicators that can help individuals and an industry identify areas of strength and weakness. These strengths and weaknesses can then be used to adjust business models and production systems to improve profit and create robust and resilient businesses.

Table 1-1: Key benchmarks for the olive industry

TARGET	RECOMMENDED VALUES	EXPLANATION
Scale	> 80 ha	Scale magnifies profits (also losses) but spreads overheads to generate a low cost of production. Smaller scale can achieve profit, however to achieve machinery and labour efficiency approximately > 80ha is required.
Income per ha of olives	> \$10,000/ha	Income = yield (t/ha) x price (\$/t). There are number of ways to achieve a high income per hectare, either through low yields and very high price such as occurs with value added table olives, or higher yield and a lower price. The top performing businesses are achieving \$15,000+ per hectare income.
Productivity	Water and drainage, Fertiliser, Pest and Disease Management. Greater than zero!	The benchmark analysis showed that many groves are not spending money on irrigation, drainage, fertiliser or pest and disease management. If any of these factors are limiting productivity they could have a ten-fold return on investment and easily create profit.
Operating costs	Operating costs (fixed and variable) <50% of income, suggested <\$5,000/ha	Modest operating costs provide a lower risk business model and allow profit to be achieved. A good target to aim for is having operating costs (all costs excluding finance and machinery) to be no more than half your expected income. It includes variable and fixed costs ¹ , but excludes interest, rent and depreciation.
Machinery investment	Machinery value / farm income = <1.0	Investment in machinery should be tailored to the long term expected income. Many horticultural businesses over capitalise on machinery and this impacts profit performance. The current value of all machinery should be approximately equal to the expected annual income of the business.
Interest costs	<10% of income and /or debt/income =<1; and/or equity >85% in long term	Interest cost can be used to grow a profitable business, but becomes difficult to service if there is not a high operating surplus. (Income - operating costs)
Return on Capital (%)	>7% excluding any capital gain	Usually difficult for businesses just starting. In order for businesses to remain sustainable and maintain inputs, machinery and productivity achieving a positive return is critical. Many businesses in the benchmark project have a negative return to capital.
Total cost of production per hectare	Total cost of production per hectare (including finance and overheads) needs to be less than \$10,000.	The cost of production must be less than the expected income. Costs include operating, interest and depreciation plus owner's labour. This is a function of achieving a modest cost per ha. Target values per ha are also provided on the report on a per hectare and per tonnage basis.
Total cost of production per tonne	Cost of production per tonne <5,000/t (operating<\$2,500 + interest & depreciation ² <\$2,000 + owners labour ³ <\$500/t)	The cost of production per tonne must be less than the expected price per tonne. This is a function of achieving yield and low cost per ha. Target values per ha are also provided on the report.

¹ Some surveyed businesses did not include their fixed operating costs in their total expenditure. For these businesses fixed operating costs were imputed.

² Including orchard grove depreciation imputed at \$800/ha/y.

³ Calculated at \$80K per full time equivalent not included in wages operating costs.

1 Introduction

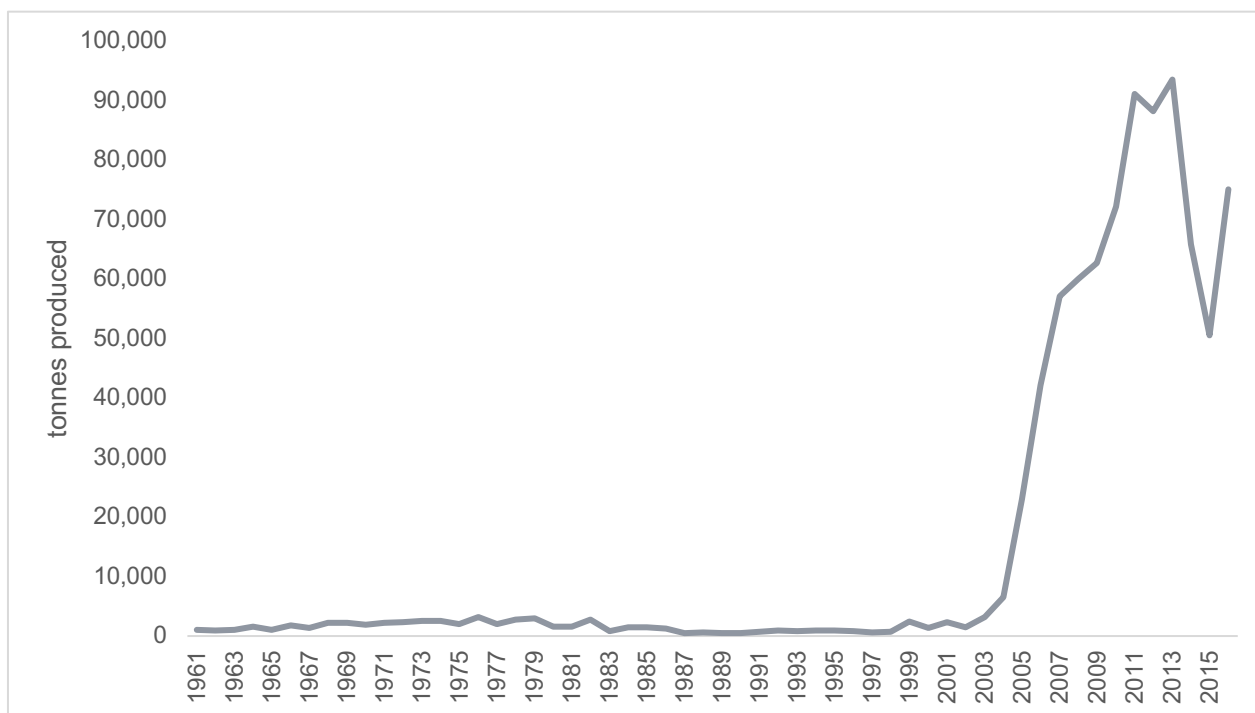
The global olive trade has significant history and scale. Global production of Olives is around 2,988,000 tonnes of oil and 2,743,000 tonnes of table olives in 2015/16⁴. This majority (98%) of all olives harvested are from the Mediterranean region⁵ making Australia at 18,000 tonnes of oil in 2015/16, a minor player in the global market.

The production of olives is for use as: table olives, oil for consumption, oil for soaps and other industrial uses. Each use brings a range of economic outcomes. These end uses also have a range of competing products, primarily a voluminous supply of olives and oil coming from Europe, and then secondarily, competition with other animal and vegetable fats.

Rising global trade and the GFC has increased pressure on olive producers to achieve a high-quality product at a competitive price. This is evidenced with the recent commissioning of the International Olive Oil production costs⁶ study by the International Olive Council where they sought to understand different production systems and the resulting financial performance on a EUR per kilogram bases, i.e. benchmarking regional performance.

The Australian olive industry is a \$210 million industry comprised of approximately 900 growers, producing an estimated 107,000 tonnes of olives per annum. 95% of Olives are grown for the processing market for olive oil. The remainder are sold as table olives for fresh consumption. Only a few growers are considered large scale, that is greater than 80 hectares, with the majority of growers servicing boutique and niche markets on less than 20 hectares of production.

The majority of olives are produced in Victoria, with 63% of the production volume. This is followed by Western Australia (17%), South Australia (11%) and New South Wales (9%)⁷.



⁴ <http://www.internationaloliveoil.org/estaticos/view/131-world-olive-oil-figures>.

⁵ P1, International Olive Oil Production costs study, International Olive Council, Oct 2015.

⁶ P1, International Olive Oil Production costs study, International Olive Council, Oct 2015.

⁷ Horticulture Innovation Australia (2016) Australian Horticulture Statistics Handbook "Fruit" 2014/15.

Figure 1: Australian Olive production – tonnes produced, source: FAO

Figure 1, above, shows the rapid increase in Australian Olive production since 2003. An industry with rapid expansion will require a period of consolidation and optimisation to allow sustainable and low-cost production to occur. For example, Olive groves that have been established in 2005-2012 will now be in a position where the initial capital and/or investors will be seeking a return. As such, Olive groves need to perform at levels where income exceeds costs to enable them to remain viable.

The Australian Olive industry is relatively small in the global market. Australia also has different labour, irrigation and compliance costs compared to other regions in the world. Thus, Australia must understand its relative strengths and weaknesses to drive performance into the future, and in order to optimise the existing investment in Olive groves, let alone to drive future investment in new groves.

According to Industry⁸ 75% of all table olives sold in Australia have been imported. The market for domestic olive production is import replacement and is often niche markets.

1.1 BENCHMARKING

Benchmarking is a process of collecting a set of physical and financial data from a number of businesses in an industry and then analysing that dataset to determine the performance of the sample, which in turn can provide insight as to what is happening at an industry level.

Benchmarking should undertake a whole of business analysis to understand the full context for the industry. A smaller and simpler gross margin calculation fails to provide a clear picture on business performance. Collecting part information often misses key cost inputs and income inputs that are relevant to the olive business.

Olive growing involves considerable expertise in the management of:

- Markets for product and key relationships with sales channels,
- Physical resources such as land and water,
- Production system such as mix of crops, varieties, operating costs, marketing, technology and husbandry,
- Human resources such as family labour, permanent employees, picking labour and contractors,
- Capital items such as debt management and depreciation, and
- Off-farm interests.

Grower profitability depends on the combined performance of all these items, but it is not always easy to work out which areas need to be changed. Like all business managers, growers are faced with an enormous range of decisions that can increase (or decrease) the performance of their business. Recognising which areas are performing well and which ones are not, is important for making better decisions.

Benchmarking can help growers and industry learn about their own performance and compare that to what is 'average' and what is 'high performance.' It also assists in learning how other businesses operate and the level of profit that can be achieved. Most importantly, it aims to encourage growers to act based on what they have learned through the benchmarking process.

⁸ <https://australianolives.com.au/industry-snapshot/>.

1.2 THIS PROJECT

This benchmarking has obtained physical and financial data from growers across Eastern Australia who volunteered to participate. Without growers who are willing to provide their data, benchmarking would not be possible. Benchmarking is much more valuable to businesses that participate in the study as they are able to see exactly their performance compared to industry.

Datasets

An overview of the datasets is provided in the following dot points.

- The datasets obtained from across the Eastern States of Australia and includes growers from: NSW, Victoria, South Australia and Tasmania.
- Each business was required to provide two years of physical and financial data for analysis to allow for any assessment of biannual production that can occur in olive production.
- A total of 14 businesses participated in the benchmarking project. This report represents the dataset that was collected, not the entire industry, however the trends discovered are likely to represent the industry.
- The financial and production years examined were 2015/16 and 2016/17. A small amount of data was collected for the 2017/18 season however this was not sufficient for analysis.
- Datasets were obtained via a face to face interview or via phone and email consultation.
- Each dataset was entered into a database with review by RMCG and adjustment of any outliers and returned to the participating grower for validation of the dataset.
- The database was analysed to understand the various levels of performance.
- Each individual business received a customised report to enable them to fully understand their business and opportunities to improve performance.
- The entire dataset is reported in aggregation in this report to enable the industry to understand performance.

Each grower that participated in the benchmarking project has received a customised report to show how their business compared to the low 33% of the industry, the middle of the industry and the high 33% of the industry. In addition, RMCG has provided a list of customised recommendations for each business to show opportunities to improve performance.

Confidentiality

All data has been treated in confidence. The data supplied by growers contains commercial in confidence information. As such, individual businesses cannot be identified and the results can only be reported in aggregate.

Challenges

There were some challenges in achieving grower participation in this project. Some larger scale growers were concerned by supplying commercial in confidence information. Other growers were uninterested and many growers simply lacked the necessary records of physical and financial data to participate, despite their interest.

This initial benchmarking for the Olive industry has shown some key insights into issues for the industry and can provide insight as to where future levy funds may be spent to assist the industry.

Biannual production

The initial project plan made provision for the biannual production that can occur in olives. The biannual impacts were to be managed with the collection of two consecutive years of data to ensure that any changes in yield or management responses could be examined and averaged to show the typical performance for a business.

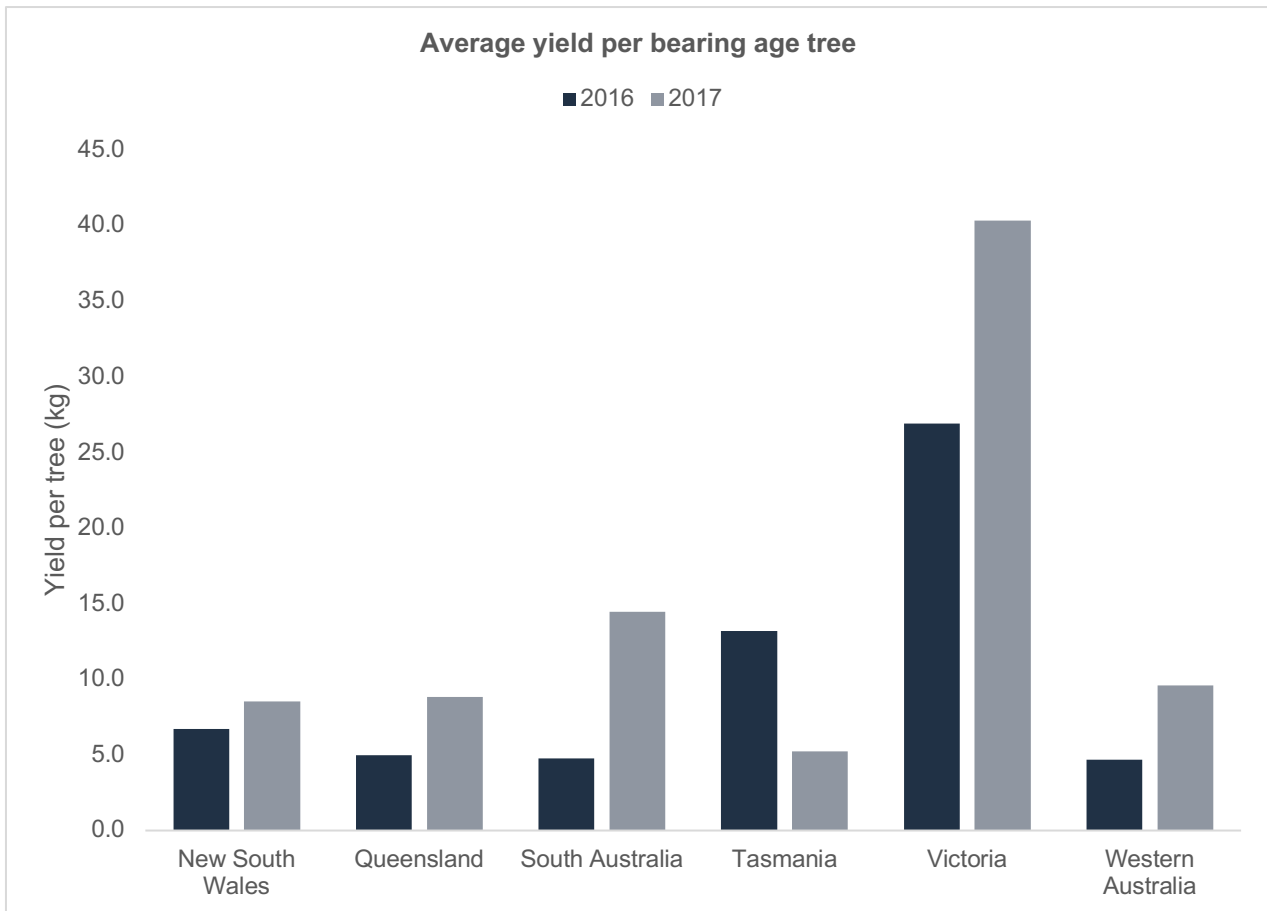


Figure 2: ABS data showing yield per tree

This chart depicts ABS data to show that variation in year to year production is occurring across Australia. This may be impacted by biannual production or other seasonal impacts such as rainfall or frost. While yields are changing from year to year, each state is performing at a similar level from year to year.

Biannual production may be a key feature of the industry; however, examination of the benchmark data shows that there are far bigger impacts on profit than biannual production. Aspects such as scale, yield, price and operating costs are significantly impacting performance in the industry. Thus, for this benchmarking project, biannual impacts have not been a focus of this study. As such, any future study could simply focus on a single year of data if attempting to understand the key profit drivers for the industry. Biannual impacts will likely come into effect and need to be understood in detail once the major issues around yield, price and cost of production are managed.

2 Industry performance

The data recorded from the benchmarking surveys has been validated, collated and analysed to provide insights for the individuals who participated, but also some broad industry commentary on the state of performance within the industry.

The datasets for 2015/16 and 2016/17 were similar and as such commentary is provided below across both production years as the messages are consistent. The following commentary can be read in context of [Appendices 1 through 4](#), which reports the low 33% of performance, the middle range of performance and the high 33% of performance.

2.1 OBSERVATIONS FROM THE BENCHMARK DATASET

Physical performance data

- **Scale.** The benchmark data shows a large number of smaller scale Olive producers participated in the project.

Olive businesses operating at small scale find it difficult to achieve profit unless very high prices and high yields are achieved through access to niche markets. The majority of businesses that participated in the project were smaller than 20 hectares, which does represent a significant number of industry participants. RMCG has suggested that a scale of approximately 80 hectares is required to achieve efficiency of production for both labour and machinery utilisation and to return sufficient profit to support a growing business.

- **Price per tonne.** The price per tonne achieved is highly variable. Lower values were around the \$600-\$800 per tonne, and higher values were in excess of \$8,000 per tonne.

This range represents different business models for both oil and table markets with direct to consumer sales achieving a price premium, albeit with typically lower volumes. The price per tonne is only a component of income and needs to be assessed in context of yield. Price per tonne is likely reflecting the specific market a grower can access and the quality of fruit produced.

Note: See Income per hectare in the following section on Financial performance data.

- **Yield per hectare.** Yield per hectare is highly variable with a range of 0.1 through to 8.0 tonnes. Yield is a key driver of profit. RMCG has suggested that a minimum of 2.0 tonnes per hectare is required to achieve a profitable business. Yield may also be related to market access for smaller growers, i.e. some growers may be reluctant to grow more olives per hectare if they are unable to process or sell the crop. Thus, creating a yield ceiling that is a result of market access, machinery capacity or labour capacity, not necessarily due to physical production limits.

Note: See Income per hectare in the following section on financial performance data.

- **Oil yield per hectare.** Olive groves producing oil reported an enormous range of production from 50 litres through to 1,800 litres per hectare. Oil extraction levels were a little variable; however, the main driver of the variable oil yield is in fact that of fruit yield per hectare.

Note: See Income per hectare in the following section on Financial performance data.

- **Water and drainage rates.** One key feature in the benchmark dataset is that of businesses that are spending no money on water (irrigation) and drainage to drive productivity. A common theme is that the low and middle performing datasets had zero expenditure on these activities!

This suggests that water and drainage is a key barrier to driving productivity in the industry as water is a key driver of production in all agricultural systems. Insufficient water, especially at flowering, fruit set and

fruit growth stages will impact yield, as will waterlogging in locations that are subject to high rainfall and heavy soils. It is likely that these issues are limiting productivity in the industry.

- **Pest and disease expenditure.** Similar to the previous item, there are numerous olive businesses that are spending no funds on pest and disease management.

This issue is likely to be limiting productivity, depending on the specific pest/disease in question.

- **Fertiliser expenditure.** Similar to water and pest and disease expenditure, there are numerous olive businesses that are spending no funds on fertiliser. With each harvest that occurs, nutrients are exported from an Olive grove.

If no money is spent replacing the exported nutrients, declining productivity will occur over time.

- **Water use.** Water use for irrigated groves shows a range of 0 (the low 33% of businesses) through to 3.0 (the high 33% of businesses) megalitres per hectare.

Water and soil water availability is a key driver of productivity and it is likely that many olive groves are insufficiently irrigated to generate their potential for production, hence limiting profit. A small amount of additional money spent on irrigation water and pumping that water can achieve significant additional production in a grove, especially where water is limiting production.

The physical performance data shows a large range of: scale, yield, price per tonne and physical inputs applied to businesses. As such, we would expect to see a wide range of financial outcomes that reflect these different management approaches. Businesses that have focussed on necessary scale, high income and a modest cost structure will likely achieve a good financial outcome, where as those that haven't, will likely result in a loss.

Financial performance data

- **Income per hectare.** Income per hectare is a function of yield (t/ha) x price (\$/t). The benchmark data shows that many businesses are operating with an income below \$5,000 per hectare, however the better performing businesses are achieving \$15,000 + per hectare income.

High income per hectare can either be achieved by high yield or high price, or some combination of both profit levers. The method a business adopts to achieve high income per hectare, such as 2.0t/ha at \$5,000/t of niche product (\$10,000/ha) or 10.0 t/ha of bulk at \$1,000/t is determined by the market each business supplies. The majority of businesses in the dataset were achieving below \$5,000 per hectare, and will be unlikely to create a profitable result.

Each business needs to examine its yield and price to achieve \$10,000 + income per hectare in order to achieve a profitable outcome.

- **Total farm income.** A significant range of farm incomes exists; \$12,000 (low 33%), \$50,000 (middle) through to \$1.4m (high 33%) shows that many businesses are operating at small scale and likely to be unviable once all the costs are deducted.

Income is only one component of financial viability; however, a high income provides more opportunity for profit and sustainability than a low income.

- **Farm operating costs as % of income.** This measure shows how much money remains to service overhead and finance costs in a business after the variable costs are deducted from income.

In horticulture it is an objective to achieve <50% of variable costs as a ratio to income.

This dataset showed middle level producers at 80–100% and the high level (i.e. the worst) at 230%, i.e. their variable costs were double their total income! Low, or modest cost producers were at 30–60%, this allows margin to service depreciation and finance costs and make a profit.

Businesses with low income and high cost structure are unviable in the long term. A small number of businesses had an appropriate cost structure.

- **Operating surplus.** This measure is a function of the above % indicator. It shows that the low 33% were operating with a surplus of -\$200,000 through to the top 33% with an operating surplus of around +\$400,000. Where there is no operating surplus, there is no opportunity to meet finance costs, depreciation or pay owners labour and create a return on capital.
- **Machinery investment.** Investment in machinery should be tailored to the long term expected income. Many horticultural businesses over capitalise on machinery and this impacts profit performance. As a guide, the current value of all machinery should be approximately equal to the expected annual income of the business. The benchmark data showed a large spread of outcomes, some businesses appeared to have insufficient equipment, whereas others appeared to be significantly over capitalised.
Scale is also a key driver of this ratio; a larger scale allows all machinery to work longer hours to achieve productivity and efficient use of capital.
- **Return on capital.** This is a key measure for total business performance. It shows the net profit to a business as a percentage of the assets under management.
The range, as expected, is variable and shows that many olive businesses are unviable whereas a few were quite profitable.
The low 33% of businesses had a return on capital (ROC) of -20%, middle at -4%, through to the high 33% of businesses at around 15%. Above 7% is typically required for sustainable longevity in an industry.
- **EBIT.** A common metric of business performance is earnings before interest and tax (EBIT). The bottom 33% of industry was at -\$400,000, the middle at -\$80,000 and the high 33% at +\$360,000.
Again, it is only a small number of businesses that are achieving a positive EBIT, let alone positive EBT (earnings before tax) after interest and finance costs are deducted.
- **COP per hectare.** Cost of production per hectare shows that low cost producers are achieving a total cost of around \$6,000 per hectare, the middle at \$12,000 and the high cost producers around \$25,000 per hectare!
A cost of production must be lower than the income available in order to achieve a profit and remain viable. Many businesses have a cost structure that is simply too high, and this may be a function of scale. It is also important that a business does not reduce costs that drive productivity, such as: irrigation, fertiliser and pest and disease control, in fact spending more on these items will assist in reducing financial losses.
- **COP per tonne.** Cost of production per tonne shows that low cost producers are achieving a total cost of around \$1,500 per tonne, the middle at \$6,500 and the high cost producers up to \$49,000 per tonne!

The financial performance indicators tell a similar story to the physical indicators, that is, a large number of businesses are unviable. A small number of businesses are quite profitable. The key influence that is impacting this performance is income per hectare. With insufficient income per hectare, there is little that can be done to create a profitable outcome.

2.2 YIELD VARIABILITY

The benchmarking data (Section 2.1) identified a large range of yield performance in the sample, this in turn a key driver of income per hectare. Yield performance is critical to the performance of the industry with underperforming groves at risk of being financially unviable in the medium and long term.

Olive grove establishment is capital intensive requiring significant investment in soil preparation, trees, surveying, irrigation, weed control and training costs. A low yield and subsequent low profit performance make an olive establishment quickly unviable. At very low levels of yield or income, the grove will likely be removed due to consecutive losses.

Yield data has been obtained from the Australian Bureau of Statistics (ABS) and displayed on a Geographic Information System (GIS) to represent the yield performance per tree (kg/tree) for each Statistical Area Level 2 across Australia.

The ABS dataset is limited. Yield per hectare, income per hectare, price per tonne, water use or any other useful metrics are not currently available. It is also noted that yield per tree does not consider impacts of high-density olive plantings, which can expect a lower yield per tree as the output per hectare is equivalent or higher than a standard density planting. However, the following chart illustrates the large range of yield outcomes that are occurring across Australia.

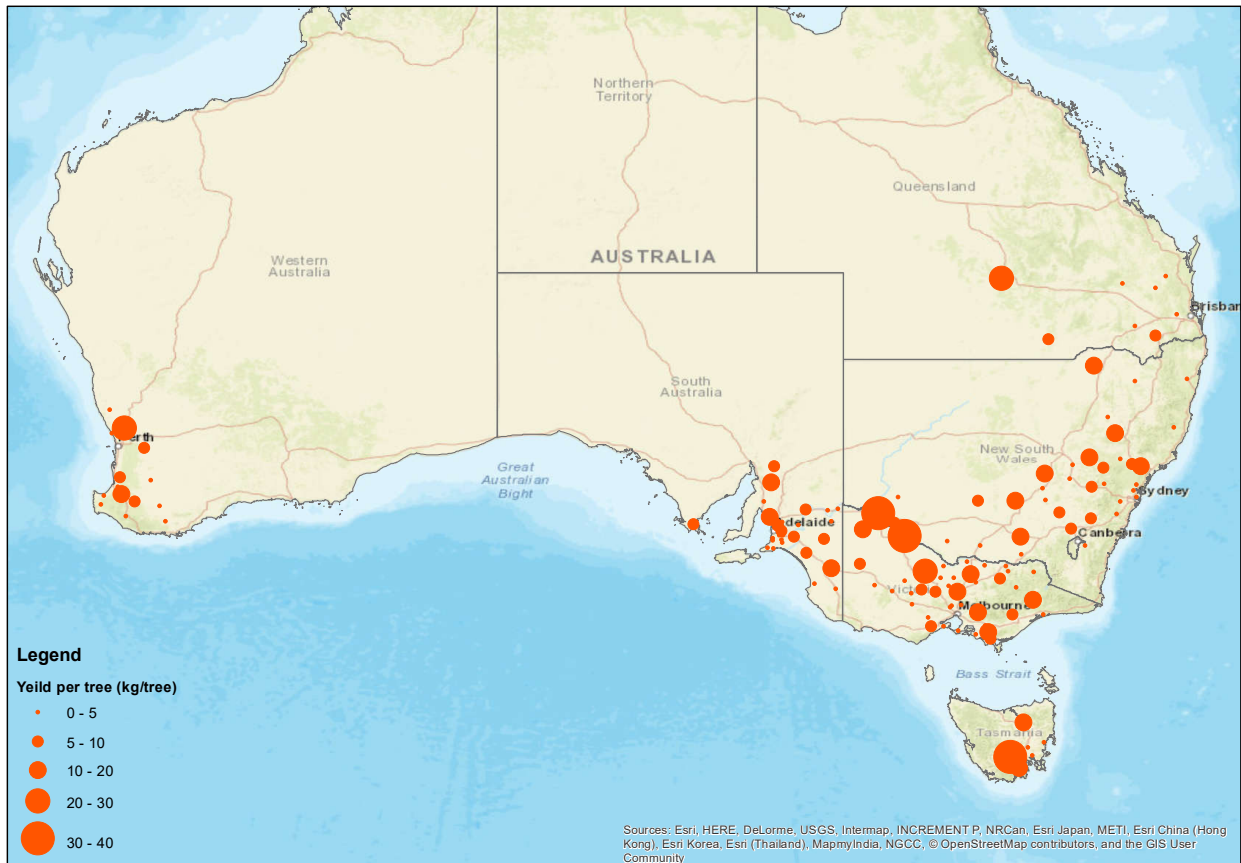


Figure 3: 2016 ABS data showing yield per tree

Figure 3, above, shows a significant variation in yield performance per tree. The benchmarking analysis shows that yield variation and low yield impacts profit performance in Australian olive groves. The above figure illustrates the yield range issue, showing three locations in Australia that are achieving greater than 30kg per tree, only another three locations achieving greater than 20kg per tree and then significant numbers of regions achieving less than 10kg per tree.

The variability in yield is a key issue and is impacting performance of the industry. It is worth noting that those areas with highest yields per tree, generally have access to irrigation water or high rainfall. This suggests lack of irrigation may be limiting industry yield in other areas.

Appendix 1: 2015/16 dataset

RANGE / ITEM	UNIT	LOW 33%	MIDDLE (ALL DATA)	HIGH 33%	RMCG SUGGESTED
Area olive area per household / business	ha	4	17	84	>80
Production Dollars					
Average olive price per t received (income less processing cost)	\$/t	839	4,065	8,862	>5,000
Olive income less processing costs	\$	12,214	36,441	691,200	
Olive growing income/ha olive	\$/ha	1,706	3,140	13,988	>10,000
Yield tonnes per ha	t/ha	0.1	1.6	4.8	>2
Litres per tonne for oil	L/t	88	181	242	
Litres per ha for tonnes processed to oil (uses property average t/ha yield)	L/ha	57	550	1,088	
other Farm Income (non-olive growing) excluding processing cost	\$	0	0	59,333	
Total Farm Income after processing cost deducted	\$	12,214	36,441	738,533	
Total Farm Income	\$	14,981	52,000	870,000	>800,000
Total Operating Costs includes processing	\$	17,038	101,250	667,700	
Farm Operating Costs (excludes processing)	\$	14,272	83,750	536,233	
Olive growing operating costs	\$	13,805	80,750	536,233	
Olive Operating Costs / olive ha	\$/ha	2,623	4,750	9,651	<5,000
Farm Operating Costs as a % farm income	%	62%	102%	226%	50%
Operating surplus	\$	(168,083)	(450)	318,533	
Farm Operating Surplus / household	\$/h hold	(168,083)	(450)	168,450	
Olive Operating Surplus / olive ha	\$/ha	(3,133)	(1,372)	6,774	

RANGE / ITEM	UNIT	LOW 33%	MIDDLE (ALL DATA)	HIGH 33%	RMCG SUGGESTED
Olive Operating Surplus / olive developed land value	%	-18%	-1%	36%	
Electricity cost as % of farm income	%	0%	1%	22%	
Water & drainage rates cost as % of farm income	%	0%	0%	16%	
Pest & disease management as % of farm income	%	0%	1%	5%	
Fuel cost as % of farm income	%	1%	2%	15%	
Repairs of Machinery as % farm income	%	0%	4%	15%	
Fertiliser as % of farm income	%	0%	3%	19%	
Harvesting costs as % of farm income	%	3%	14%	70%	
Labour and contractors (inc. harvesting) as a % of farm income	%	0%	2%	9%	
Capital Performance					
Return on capital - assets managed (after grove depreciation at \$800/ha/yr)	%	-19%	-4%	11%	>7%
Value of farm / household	\$/h hold	516,667	1,200,000	2,650,000	
Debt as a ratio of income	ratio	-	-	1.80	<1.0
Financing costs as % of income	%	0%	0%	14%	<10%
Farm equity %	%	70%	100%	100%	>85%
Farm machinery clearing sale value as a ratio of farm income	ratio	0.3	1.4	6.5	<1.0
Viability					
Earnings before Interest & Tax (EBIT) after owner's salary	\$	(356,267)	(83,700)	260,857	>120,000
Farm profit after grove depreciation & before owner's salary	\$	(301,550)	(26,303)	262,527	
Farm profit / household	\$/h hold	(301,550)	(26,303)	129,693	>80,000
Net non-farm income / household	\$/h hold	0	0	0	

RANGE / ITEM	UNIT	LOW 33%	MIDDLE (ALL DATA)	HIGH 33%	RMCG SUGGESTED
Disposable Income / household (before grove depreciation)	\$/h hold	(236,750)	(19,903)	138,760	
Disposable Income / household (after grove depreciation)	\$/h hold	(301,550)	(26,303)	129,693	
+/- Change to DI./h.hold if price or yield\ changes +/-10%	+/-\$/h hold	1,221	3,644	47,543	
Net worth/household	\$/h hold	710,000	1,199,900	3,933,333	
Lifestyle					
Days holiday a year per household	days/ yr	0.0	14.0	265.0	>30
Days spent training per household	days/ yr	0.3	5.0	16.3	>5
Resource Sustainability					
Water use - t/ML	t/ML	0.5	3.5	63.7	
Water use - ML/ha for olives ha irrigated	ML/ha	0.6	1.0	3.0	

Appendix 2: 2015/16 cost of production

OLIVE COST OF PRODUCTION PER HA	LOW 33%	MIDDLE (ALL DATA)	HIGH 33%	RMCG SUGGESTED
Electricity (excluding processing)	5	83	583	
Water and drainage rates	0	0	772	
Sprays / chemicals / IPM consultants	0	63	157	
Fuel	63	154	315	
Repairs & maintenance of machinery	58	200	476	
Fertiliser	0	192	830	
Employed harvesting labour/contractors	108	583	2,690	
Employed non-picking labour / contractors / consultants	0	19	2,133	
Non-itemised other expenditure (estimated overheads)	982	1,985	5,002	
Total operating	2,623	4,750	9,651	<5,000
Standard annual cost of capital (interest & depreciation)	2,548	2,968	6,079	<4,000
Owner's labour	0	2,000	17,556	<1,000
Total cost of Production of olives	5,628	12,413	28,064	<10,000

OLIVE COST OF PRODUCTION PER TONNE	LOW 33%	MIDDLE (ALL DATA)	HIGH 33%	RMCG SUGGESTED
Electricity (excluding processing)	1.1	39.0	369.0	
Water and drainage rates	0.0	3.8	656.7	
Sprays/chemicals/ IPM consultants	0.0	22.1	147.1	
Fuel	29.1	97.4	547.1	

OLIVE COST OF PRODUCTION PER TONNE	LOW 33%	MIDDLE (ALL DATA)	HIGH 33%	RMCG SUGGESTED
Repairs & maintenance of machinery	15.5	75.3	555.3	
Fertiliser	0.0	74.3	575.9	
Employed harvesting labour/contractors	142.3	452.3	5,467.5	
Employed non-picking labour / contractors / consultants	0.0	80.5	1,314.4	
Non-itemised other expenditure (estimated overheads)	438.4	1,818.3	6,232.6	
Total operating	1,304	3,191	13,753	<2,500
Standard annual cost of capital (interest & depreciation)	755	1,458	8,900	<2,000
Owner's labour	0	308	29,878	<500
Total cost of production of olives	2,443	7,131	49,320	<5,000

Appendix 3: 2016/17 dataset

RANGE / ITEM	UNIT	LOW 33%	MIDDLE (ALL DATA)	HIGH 33%	RMCG SUGGESTED
Area olive area per household / business	ha	6	8	106	>80
Production dollars					
Average olive price per t received (income less processing cost)	\$/t	596	1,250	8,076	>5,000
Olive income less processing costs	\$	11,400	32,800	1,091,600	
Olive growing income/ha olive	\$/ha	2,113	4,113	17,905	>10,000
Yield tonnes per ha	t/ha	0.7	3.5	8.2	>2
Litres per tonne for oil	L/t	117	151	239	
Litres per ha for tonnes processed to oil (uses property average t/ha yield)	L/ha	78	521	1,834	
Other Farm Income (non-olive growing) excluding processing cost	\$	0	0	17,600	
Total Farm Income after processing cost deducted	\$	11,400	32,800	1,091,600	
Total Farm Income	\$	12,400	45,300	1,384,500	>800,000
Total Operating Costs includes processing	\$	7,363	101,083	1,055,500	
Farm Operating Costs (excludes processing)	\$	6,363	98,086	762,600	
Olive growing operating costs	\$	5,238	98,086	762,600	
Olive Operating Costs / olive ha	\$/ha	1,046	5,739	10,107	<5,000
Farm Operating Costs as a % farm income	%	25%	84%	230%	50%
Operating surplus	\$	(214,635)	2,275	514,150	
Farm Operating Surplus / household	\$/h.hold	(214,635)	2,275	259,025	
Olive Operating Surplus / olive ha	\$/ha	(5,148)	1,163	11,059	

RANGE / ITEM	UNIT	LOW 33%	MIDDLE (ALL DATA)	HIGH 33%	RMCG SUGGESTED
Olive Operating Surplus / olive developed land value	%	-143%	3%	46%	
Electricity cost as % of farm income	%	0%	1%	3%	
Water & drainage rates cost as % of farm income	%	0%	0%	1%	
Pest & disease management as % of farm income	%	0%	0%	6%	
Fuel cost as % of farm income	%	0%	4%	12%	
Repairs of Machinery as % farm income	%	0%	8%	14%	
Fertiliser as % of farm income	%	0%	1%	9%	
Harvesting costs as % of farm income	%	5%	11%	19%	
Labour and contractors (inc. harvesting) as a % of farm income	%	0%	0%	12%	
Capital Performance					
Return on capital - assets managed (after grove depreciation at \$800/ha/yr)	%	-22%	-4%	20%	>7%
Value of farm / household	\$/h hold	375,000	1,030,000	1,775,000	
Debt as a ratio of income	ratio	-	-	1.28	<1.0
Financing costs as % of income	%	0%	0%	14%	<10%
Farm equity %	%	72%	100%	100%	>85%
Farm machinery clearing sale value as a ratio of farm income	ratio	0.2	0.9	10.9	<1.0
Viability					
Earnings before Interest & Tax (EBIT) after owner's salary	\$	(421,748)	(81,725)	461,750	>120,000
Farm profit after grove depreciation & before owner's salary	\$	(381,809)	(13,050)	460,000	
Farm profit / household	\$/h hold	(381,809)	(13,050)	230,750	>80,000
Net non-farm income / household	\$/h hold	0	0	0	

RANGE / ITEM	UNIT	LOW 33%	MIDDLE (ALL DATA)	HIGH 33%	RMCG SUGGESTED
Disposable Income / household (before grove depreciation)	\$/h hold	(304,209)	(8,250)	243,150	
Disposable Income / household (after grove depreciation)	\$/h hold	(381,809)	(13,050)	230,750	
+/- Change to DI./h.hold if price or yield\ changes +/-10%	+/-\$/h hold	1,140	3,280	73,705	
net worth/household	\$/h hold	175,000	1,030,000	1,850,000	
Lifestyle					
Days holiday a year per household	days/yr	0.0	10.0	180.0	>30
Days spent training per household	days/yr	0.0	5.0	18.5	>5
Resource Sustainability					
Water use - t/ML	t/ML	1.2	51.4	4,225.0	
Water use - ML/ha for olives ha irrigated	ML/ha	0.0	0.4	2.8	

Appendix 4: 2016/17 cost of production

OLIVE COST OF PRODUCTION PER HA	LOW 33%	MIDDLE (ALL DATA)	HIGH 33%	RMCG SUGGESTED
Electricity (excluding processing)	0	27	392	
Water and drainage rates	0	0	130	
Sprays / chemicals / IPM consultants	0	0	72	
Fuel	35	130	451	
Repairs & maintenance of machinery	100	250	571	
Fertiliser	0	240	318	
Employed harvesting labour/contractors	221	600	910	
Employed non-picking labour / contractors/consultants	0	0	2,825	
Non-itemised other expenditure (estimated overheads)	426	2,975	7,110	
Total operating	1,046	5,739	10,107	<5,000
Standard annual cost of capital (interest & depreciation)	1,577	2,725	6,363	<4,000
Owner's labour	0	0	13,000	<1,000
Total cost of Production of olives	7,460	12,489	22,145	<10,000

OLIVE COST OF PRODUCTION PER TONNE	LOW 33%	MIDDLE (ALL DATA)	HIGH 33%	RMCG SUGGESTED
Electricity (excluding processing)	0.0	3.0	143.5	
Water and drainage rates	0.0	0.0	36.1	
Sprays / chemicals / IPM consultants	0.0	0.0	16.3	
Fuel	4.7	59.9	289.0	
Repairs & maintenance of machinery	27.8	81.8	366.2	
Fertiliser	0.0	31.5	324.3	
Employed harvesting labour/contractors	25.8	127.5	1,054.1	
Employed non-picking labour / contractors / consultants	0.0	0.0	1,305.6	

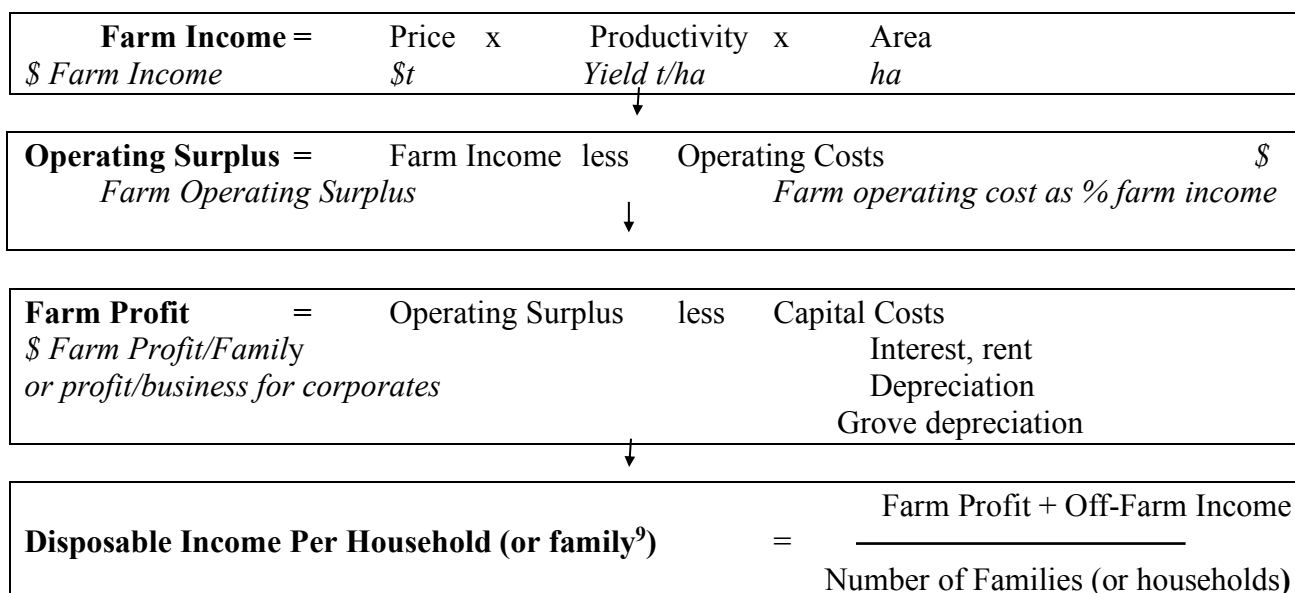
OLIVE COST OF PRODUCTION PER TONNE	LOW 33%	MIDDLE (ALL DATA)	HIGH 33%	RMCG SUGGESTED
Non-itemised other expenditure (estimated overheads)	129.0	396.7	3,440.6	
Total operating	293	2,209	5,546	<2,500
Standard annual cost of capital (interest & depreciation)	285	1,260	4,606	<2,000
Owner's labour	0	0	20,651	<500
Total cost of Production of olives	913	6,156	29,236	<5,000

Appendix 5: Explanation of indicators

The basis of RMCG's 'BizCheck' is to measure and understand how the farm business system works. The process uncovers the main components of the business and how they combine to determine the farm profit per family. In this analysis, we have focused on the drivers of farm profit. By measuring and comparing performance, 'BizCheck' is designed to identify particular areas for action in each individual business and therefore make planning more effective. This is achieved by individuals considering their results against the group ranges and deciding which of the benchmarks they wish to address.

Disposable income is farm profit plus off-farm income; it is the money a family has after meeting all farm costs. It can be used for living, reducing debt or creating assets. It is the main item that drives decisions and change. If growers can see a positive effect on their families' disposable income they are more likely to make that change. The following diagram shows the components of farming businesses.

To manage any element of a business, the element needs to be measured on a consistent basis to give feedback on what parts of the business are performing well and what parts are performing poorly. The diagram below shows where business dollars come from and where they go. It also shows the main indicators or 'checks' that are used in 'BizCheck' to measure performance.



It is difficult to consistently define what constitutes a family or household. Examples are:

- a. Parents and a grown-up child living at home, working on the farm and all drawing an income
- b. A couple with retired parents who still draw a small income from the farm
- c. One family working the farm, while retired parents still retain ownership but do not draw an income.

Situations a) and b) can be considered as 1.5 households, while situation c) can be considered as 1.0 household as the farm has effectively been passed on. In practice, these anomalies do not change the overall significance of the results. The amount of money available to a family that is produced by the farm after paying for operating costs and capital costs can be considered as the farm profit per household. In 'BizCheck', farm

⁹ Note: Throughout this report household and family refer to the same unit.

profit is calculated before a salary rate is applied to the owner's time or a return on capital¹⁰. An allowance for \$800/ha/y grove depreciation to fund replanting/renewal of irrigation has been subtracted. When income is tight, there is pressure to defer replanting and use funds for living expenses only.

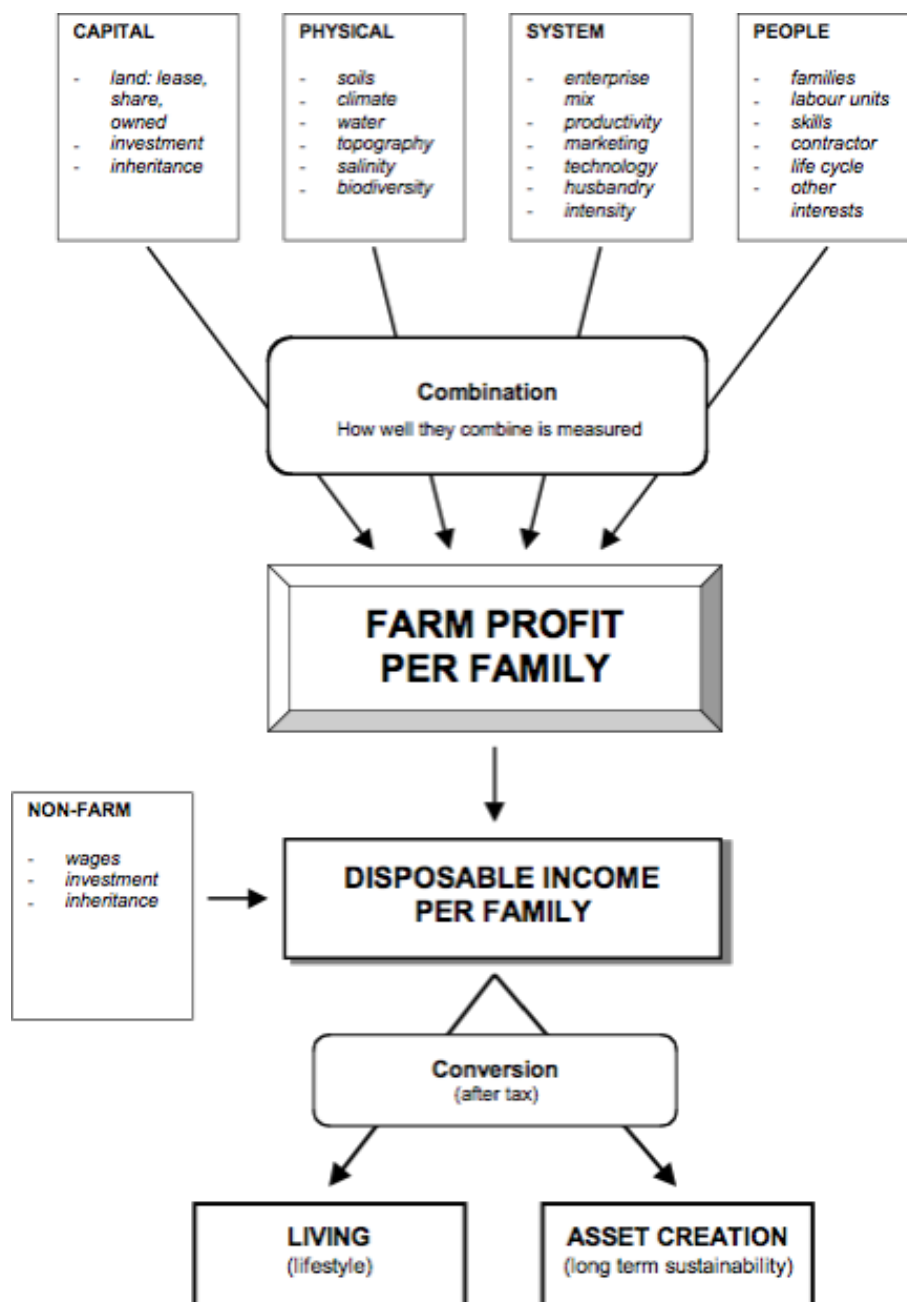


Figure 4: BizCheck model of the farming business

It is important to remember that the real indicators of success, such as happiness or well-being, are not measurable. However, knowing how one's business fits together allows individuals to improve it and hopefully more easily achieve family goals.

¹⁰ In the accompanying cost of production report farm profit is calculated after owner's salary rate and after costing all capital (not just interest on borrowings).

For example, one family may produce the top yield, but is short on money. 'BizCheck' can identify if it is due to small scale (too few ha), too much borrowing or high labour costs. Whereas another family has below average yields, but is still financially comfortable because they have a large farming area for one family, effective time use and one partner working earning non-farm income.

'BizCheck' is a learning process. It is designed to assist in learning about the individual business, learning about how other businesses operate and most importantly learning from the results and putting new practices into place. To be successful, what is learned should be built into a business strategy. A process for doing this is:

- Understand individual business situation and performance (using 'BizCheck')
- Agree within the family on goals
- Decide on action plans to achieve those goals.

This is the basis for successful business planning. The above three points involve:

- Now: understanding what is happening now
- Where: setting goals of where the business owners/family want to be
- How: developing strategies to achieve those goals.

'BIZCHECK' INDICATORS

This section gives a brief description of each business indicator and what it means. Remember, when interpreting your results, no one indicator tells the whole story. There is always a danger in placing too much importance on one indicator. Try to look at all the indicators and assess them in the context of your goals.

A The Farm System

1. *Number of households*

Clearly, the number of households or families depending on the farm for their survival is of key importance. Sometimes there are too many households trying to live from one business.

2. *Area olives/household*

This allows us to compare the size of the olive growing businesses.

3. *% Area olives <6 years old*

This indicates how much the area is in an immature phase and not yet fully producing.

4. *% Area olives >25 years old*

This indicates how much of the area is well established.

B Production Dollars

5. *Average olive price per t received less processing cost*

This is the average price you received, averaged across all of your olives, with any processing costs subtracted.

6. *Olive income less processing cost*

This is olive income less olive processing cost. It shows the olive growing income.

7. *Olive income /ha olives*

This indicates the combined effect of yield and price for olives. A key driver of business performance.

8. *Yield t/ha olives*

A key performance driver, along with price \$/t, of income per ha.

9. **Litres/tonne olive for oil**
Indicates number of Litres produced per tonne of olives.
10. **Litres/ha olive for oil**
Indicates number of Litres produced per ha of olives. It uses average property yield t/ha.
11. **Other farm income (non-olive growing) excluding processing cost**
Indicates other farm income. This is calculated from the total farm income less olive growing income less olive processing costs / levies (this is generically termed “processing costs” below).
12. **Total Farm Income after processing cost deducted**
Includes farm income from olives and all other products sold – less any processing costs (if included on the profit and loss statement).
13. **Total Farm Income**
Includes farm income from olives and all other income

Farm Costs

14. **Total Operating Costs includes processing**
Indicates the total cost of operating all enterprises on the farm. But does not include capital cost, i.e. borrowings or depreciation of machinery.
15. **Total Operating Costs excluding processing**
As above excluding processing.
16. **Olive growing operating costs excluding processing**
As above adjusted for the % used on olive growing and excluding processing.
17. **Olive Operating Costs per olive ha**
This is the Olive growing operating costs divided by the number of olive hectares. This tells you whether your costs are high independently of your income.
18. **Farm operating cost as a % of income**
This is check 15 divided by check 12. It provides a measure of whether farm cost structure is high or low. If below 50%, cost structure is low.

Farm Operating Surplus

19. **Farm operating surplus**
The farm operating surplus is what the farm has made before it pays owners, any financial costs, replaces any machinery, makes any capital improvements or pays any tax.
20. **Farm operating surplus/household**
The farm operating surplus is what the farm has made before it pays owners, any financial costs, replaces any machinery, makes any capital improvements or pays any tax.
21. **Farm operating surplus per olive ha**
This check gives an indication of performance on a per hectare basis. Farm operating surplus / hectare should be higher if the land is of higher value Farm size is very important to consider alongside this indicator, as a low surplus per hectare can be covered by extra area.
22. **Operating surplus per developed land value %**
This indicator gives an indication of performance, against the land value.

Input Costs

23. **Electricity cost as % of farm income**
This, along with items **24** to **30** gives an indication of whether the cost level is high for the key individual items.
24. **Water & drainage rates cost as % of farm income**

- 25. **Pest & disease management as % of farm income**
This includes IPM consultants and weedicides.
- 26. **Fuel cost as a % of farm income**
- 27. **Repairs of machinery as a % of farm income**
- 28. **Fertiliser as a % of farm income**
- 29. **Harvesting costs as a % of farm income**
- 30. **Labour and contractors (inc. harvesting) as a % of farm income**

C Capital Performance

31. **Return on capital (after olive grove depreciation)**

This figure gives an indication of the return generated by the total farm investment, after allowing an owner's allowance of \$80,000. It can be compared with other investments. A guide is:

Low	<2%
Medium	2% to 4%
Good	4% to 8%
Very high	>8%

It also allows for horticultural depreciation of \$800/ha to cover long term replanting costs.

32. **Value of area farmed/household**

Indicates the capital value of the business per family. Another measure of scale.

33. **Debt as a ratio of income**

The banks like this ratio. It is quick, and easy to calculate. The comfortable level will depend on the life cycle of the family, as well as attitude to risk and debt. This ratio does not take account of non-farm income, which can greatly help meet family needs and/or service debt.

A guide is:

<1.0	Target (by age 55)
1.0–1.5	Moderate
>1.5	Be careful
>2.0	Hot water (unless there is non-farm income)

34. **Financing costs as % of income**

Is debt servicing comfortable, or is debt too high? Should debt reduction be a business priority?

The average figure over a number of years is what is relevant. A guide is:

Low	<7%
Medium	7% to 15%
High	>15% (debt reduction is a priority)

35. Farm equity percentage

Another commonly used indicator, which has its limitations (as do most indicators). How much of what you control do you actually own? Often, low equity corresponds with great difficulty servicing debt, unless assisted by excellent cash flow or non-farm income. A guide is:

Safe (but indicates nothing about cash flow)	>90%
Moderate	75% to 90%
Be careful	60% to 75%
Likely to be struggling to service debts (depends on non-farm income)	50% to 60%
Usually a difficult situation unless the farm is very productive or supported by non-farm income	<50%

36. Farm machinery clearing sale value as ratio of income

Do you have too much capital tied up in machinery? Ask yourself: is there insufficient income, too much plant, or a combination of both?

D Viability

37. Earnings before Interest and Tax

Earnings before interest and tax (EBIT) are calculated by subtracting operating costs, owners labour allowance (\$80K/full time equivalent) and depreciation (includes grove depreciation at \$800/ha) from gross income. Earnings before interest and tax is sometimes referred to as operating profit and is the return from all the capital used in the business.

38. Farm profit after grove depreciation and before owner's salary

This indicates the proportion of the total disposable income across all owners that is generated by the farm.

39. Farm profit after grove depreciation and before owner's salary per household

This indicates the proportion of your disposable income per family is generated by the farm.

40. Net Non-farm income per household

An integral part of the business, off-farm income may be by choice or necessity. Whatever the reason it can help improve the bottom line of the business. A guide is:

Low	<\$25,000
Medium	\$25,000 to \$50,000
High	>\$50,000

41. Disposable income per household (before grove depreciation)

This is the disposable income (which includes non-farm income) to meet the following costs:

- Tax
- Living costs
- Any capital improvements
- Asset creation (including the setting aside of a nest egg, debt repayments)
- Retirement funding e.g. superannuation
- Replanting (orchard depreciation)

Requirements for disposable income per family vary according to our age, number of dependents etc. However, Disposable Income is a bottom line indicator. Insufficient Disposable Income means that personal goals and management objectives may become increasingly compromised. As a guide:

Low	<\$50,000
Medium	\$50,000 to \$100,000
High	>\$100,000

42. **Disposable income per household (after grove depreciation)**
This is the same as above, but allows for replanting costs (grove depreciation of \$800/ha/y).
43. **Change to disposable income per household if price changes by 10%**
This indicates how exposed your business may be to a price reduction or increase. Businesses that have low operating surplus, high debt, large size and low off-farm income would be most exposed.
44. **Net worth per household**
This summarises the net worth per family. This varies with the lifecycle of both the family farm operators and their business.

Lifestyle

45. **Days holiday a year per household**
Based on nights away from the farm. Does the family get away from the farm together? Is this figure satisfactory to everyone in the family.
46. **Days spent training each year per household**
Are we developing our skills to help us meet future business & family challenges?

F Resource Sustainability

47. **Water use: t/ML irrigation**
How does your production and water use compare with the rest of the industry?
48. **Water use: ML/ha for each ha irrigated**
How does your irrigation depth applied for the season compare with requirements and district averages?

ASSESSMENT METHOD

Cost of production is based on the % of total costs allocated to olive growing as advised by the participant. Cost of production is reported on a per ha basis and also a per tonne basis. Cost of production uses standard capital costs. And owners labour at \$80,000 per full time equivalent.

The standard annual cost of capital used were:

interest imputed at:

- 3% of land value,
- 8% of machinery value,
- 5% operating costs excluding harvest costs¹¹

Depreciation was costed at:

- 15% of machinery value
- Horticultural depreciation at \$800/ha/y grove

¹¹ Interest on harvest costs is considered a small value as it should be a small amount of time between harvesting cost and receiving income.

The diagram below shows the relationship between olive income, costs and enterprise profit.

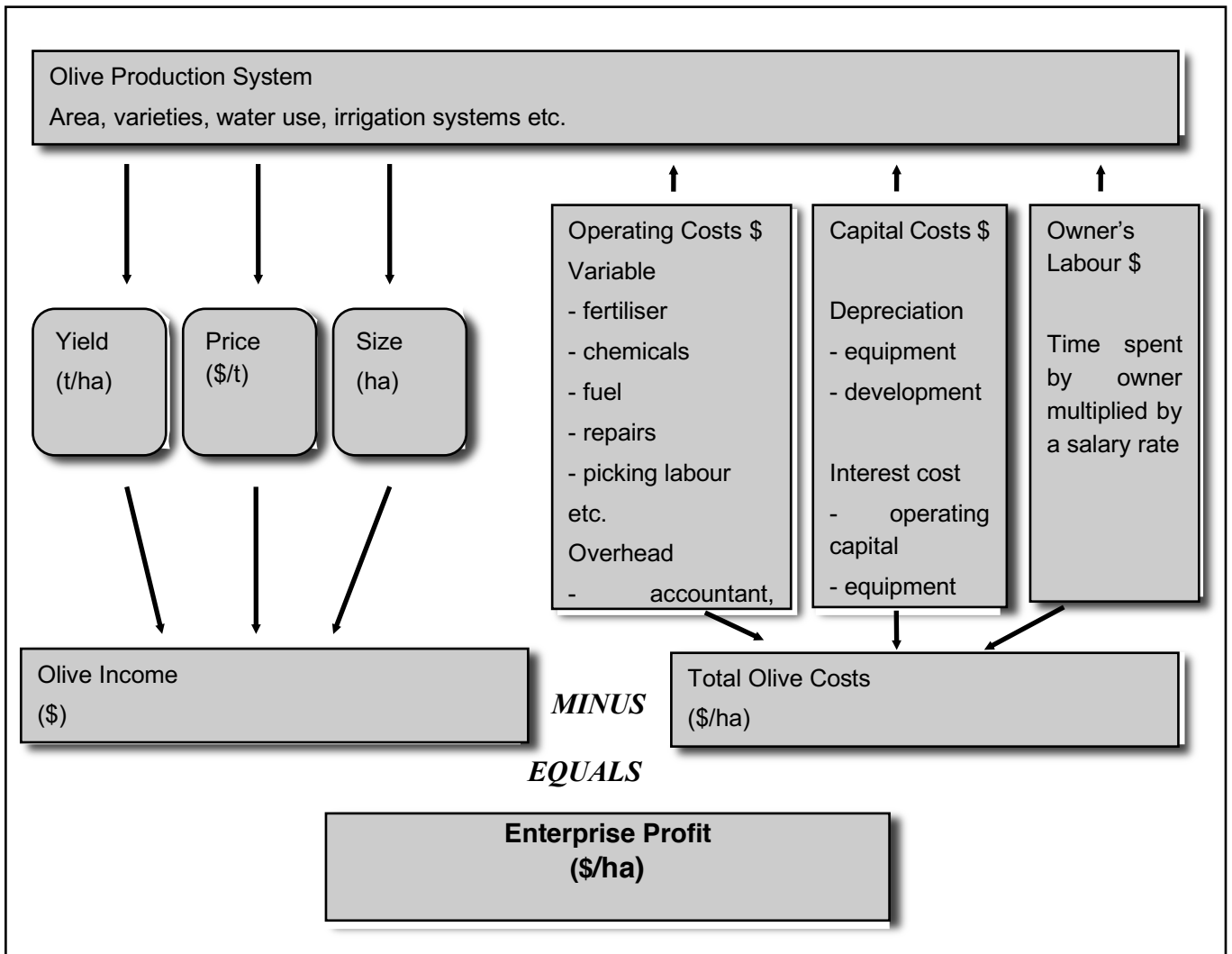


Figure 5: Factors that determine 'Cost of Production'

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