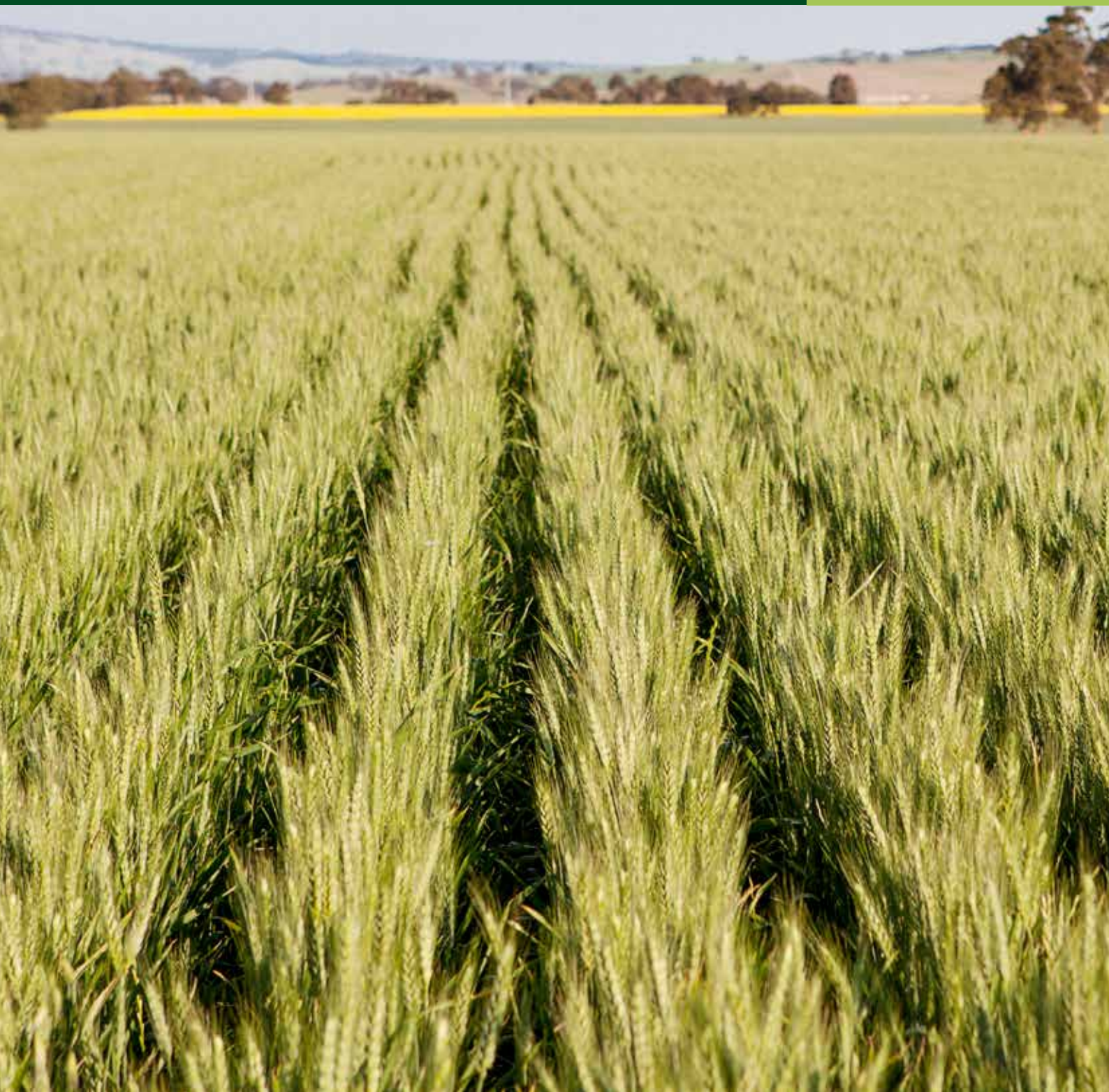
CROPPING ZONE MANAGEMENT GUIDELINE RDP00013

GRDC
GRAINS RESEARCH & DEVELOPMENT CORPORATION

NEW SOUTH WALES SW SLOPES



Foreword

This *Management Guideline* has been designed for grain growers as part of the GRDC's Project RDP00013 'The integration of technical data and profit drivers for more informed decisions'. This national project is being delivered across the 14 major grain growing agro-ecological zones in Australia through the collaborative partnering of five agribusiness consulting organisations.

This report identifies the key management affected profit drivers by agro-ecological zone and provides some guidelines around how growers can manage them. The profit drivers have been identified through the collection of more than 300 benchmarking datasets nationally. These benchmarking datasets have been analysed by the respective project partners to identify the key management affected profit drivers by agro-ecological zone. The quantitative benchmarking analysis has also been complemented by a qualitative survey process with grain growers across each region.

It has been valuable for the project to be driven at the agro-ecological zone level where each of the project partners have been able to draw out local insights and perspectives. There are a range of environmental and enterprise characteristics that are unique to each agro-ecological zone and the applied project methodology allows these to be explored.

A consistent message from the project is that there is a large gap in financial performance between the Top 20% businesses and the average business in each agro-ecological zone. There is abundant opportunity for many grain growers to increase profit from the resources that they currently have available to them.

Prepared by Meridian on behalf of the Grains Research & Development Corporation.

MERIDIAN Agriculture

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1. Executive Summary

This Management Guideline for the NSW/Vic Slopes agro-ecological zone has been developed by Meridian Agriculture on behalf of the GRDC and demonstrates that there is a significant gap in financial performance between the Top 20% producer and the average farming business within the zone. The Top 20% producers have been selected based on Return on Equity (ROE).

In the NSW/Vic Slopes zone, the Top 20% have generated an operational ROE* of 7.4% during the three year period analysed between 2012/13 and 2014/15. This is over double the average business in the zone which recorded a ROE* of 3.5% during the same time period.

Return on Assets Managed (ROAM) is an alternative ratio which can be used to measure financial performance. In the NSW/Vic Slopes zone the Top 20% recorded an operational ROAM* of 7.9%, considerably higher than average business in the dataset at 5.7%.

The ability of the Top 20% businesses to achieve higher levels of farm income from a similar capital base is a standout in this report, producing 30% higher income on a per hectare basis than the average. Additionally they are able to contain their variable costs to a lower percentage of farm income than the average.

Most farms in the NSW/Vic Slopes zone run a mixed system with cropping and livestock. The Top 20% producers run both enterprises in a highly profitable fashion.

There are a range of important profit drivers that are influencing variation in farm performance. The four primary profit drivers that are driving the differences in long term financial performance have been identified as:

1. Gross margin optimisation

2. Developing a low cost business model

3. People and management

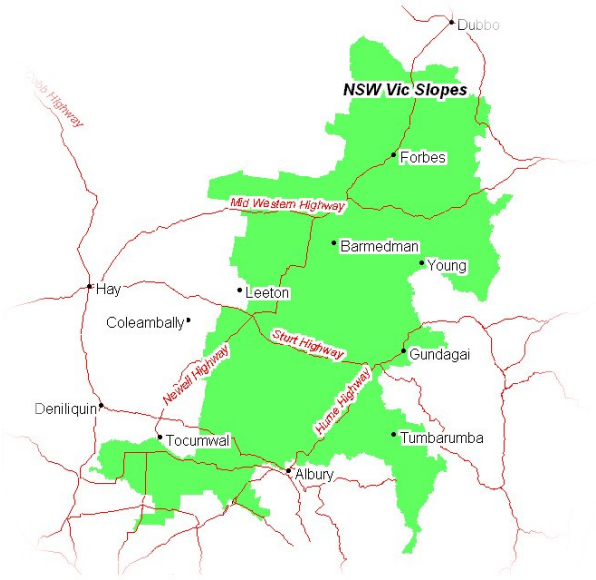
4. Risk management

It is the interaction of these four primary profit drivers that is resulting in very different levels of financial performance being achieved.

This report will examine each of these profit drivers in detail. At the end of the report is a worksheet that allows individual farmers to compare their own business to the data set to explore areas for improvement.

* The data collected and analysed in this management guideline booklet was collected for the three year period between 2011 – 2013. The seasonal conditions experienced over these years will have had an influence over the results achieved in each agro-ecological zone. If seasonal conditions differ from those experienced during this time period, some of the comparisons within and between the zones and regions may change.

2. Farm Characteristics of the Zone



Soil types	Sandy loam to light clay
Rainfall	400 mm to 800mm
Average yield	3.6 t/ha for wheat across the dataset collected
Enterprises	54% average cropping intensity. The businesses in this zone have two major crop types in their cropping rotation. • Wheat • Canola
Average farm size	2,306 hectares

Table 1 shows the broad operational parameters for the businesses in the dataset.

Table 1: Farm size, percent of land leased or share farmed and cropping intensity.

KPI	Top 20% by ROE	Average of dataset	Min	Max
Average farm size	1,890	2,306	671	9512
% leased/share farmed	14%	11%	0%	41%
% land to crop	59%	54%	17%	94%

The Top 20% of businesses were about three quarters the size of the average business.

The Top 20% leased slightly more land than the average and both categories had similar cropping intensities.

3. Farm Business Performance

The Statement of Position and Statement of Performance summaries for the businesses benchmarked are shown in *Table 2* and *Table 3* respectively.

Table 2: The Statement of Position for the Top 20% by Return on Equity (ROE) and the average business in the dataset.

Item	Top 20% by ROE	Average of dataset	Min	Max
Total Assets	$10,708,787	$ 7,223,775	$4,662,000	$13,346,546
Total Liabilities	$2,987,200	$1,708,846	$ 129,333	$3,185,500
Net worth	$7,721,587	$5,771,107	$ 3,109,000	$9,833,767
Equity	71%	79%	52%	99%

The average total assets managed by the Top 20% were 52% greater than those managed by the entire dataset. Note that two corporate farms were not prepared to disclose their liabilities and while their assets have been included, the net worth and equity values only include those businesses for which asset and liability values were provided

Generally in the Southern Region the Top 20% have a higher equity, however in this sample the Top 20% have lower equity (71%) compared to the average of the group (79%). While the Top 20% have lower equity, and therefore higher finance costs, this is counteracted by the strong performance of these businesses in other areas, such as total income generation and gross margin optimisation.

Table 3: Statement of Performance

KPI	Top 20% by ROE	Average of dataset	Min	Max
Total income	$2,169,975	$1,660,323	$781,093	$5,902,351
Total variable costs	$ 764,223	$823,415	$ 226,367	$3,855,533
Gross margin	$1,405,752	$836,902	$ 359,006	$ 2,046,801
Total overheads	$386,268	$253,916	$ 84,190	$688,346
Operating surplus	$ 1,019,145	$582,917	$ 139,132	$1,617,191
EBIDTA	$ 992,275	$556,545	$97,799	$1,609,657
Depreciation	$105,444	$65,179	$34,107	$ 166,720
Total financing costs	$289,945	$107,816	$ 0	$ 435,473
Net profit before imputed labour	$596,887	$383,657	-$129,451	$ 1,542,042
Imputed Labour	$ 60,257	$37,127	$ 0	$ 167,692
Net profit before tax	$ 536,630	$346,399	-$ 180,733	$1,542,042
Asset turnover ratio	0.19	0.18	0.09	0.41

Table 4: The Statement of Performance for the Top 20% by Return on Equity (ROE) on a per hectare basis

KPI	Top 20% by ROE	Average of dataset	Min	Max
Total income Per ha	$ 1,073	$770	$ 435	$ 1,452
Total variable costs Per ha	$ 349	$ 321	$ 176	$ 522
Gross margin Per ha	$ 724	$ 449	$ 215	$931
Total overheads Per ha	$ 171	$ 145	$ 45	$ 328
Operating surplus Per ha	$ 553	$ 304	$ 87	$ 604
EBIDTA per ha	$ 542	$ 287	$ 61	$ 604
Depreciation Per ha	$ 51	$ 41	$ 7	$ 105
Total financing costs per ha	$ 143	$ 90	$18	$ 196
Net profit before imputed labour Per ha	$ 348	$ 176	-$ 80	$ 447
Imputed Labour Per ha	$ 36	$ 30	$ 0	$ 128
Net profit before tax Per ha	$ 311	$ 150	-$ 112	$ 397

While the average farm size in the dataset is 30% greater than the Top 20%, total income for the average business is 20% less. Despite the lower farm size, the Top 20% had a 50% higher net profit before tax than the whole data base. Business profitability is driven by optimising enterprise gross margins and developing a low cost business model. This can often be achieved across a range of levels of operating scale. Setting up a profitable business model at your existing level of scale is the best foundation from which to then consider growth opportunities.The various costs and profit as a percentage of gross farm income are shown in the following pie charts.

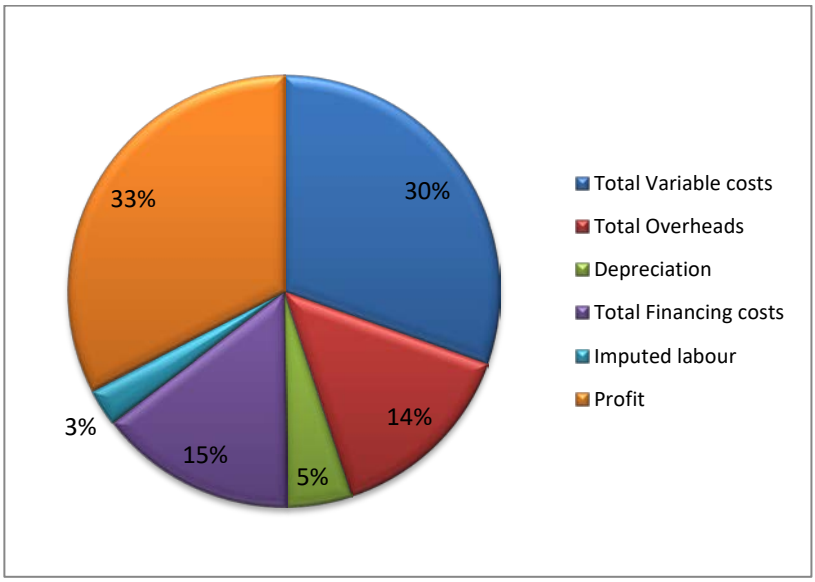


Figure 1: Costs and profit as a % of whole farm turnover for the Top 20% of producers

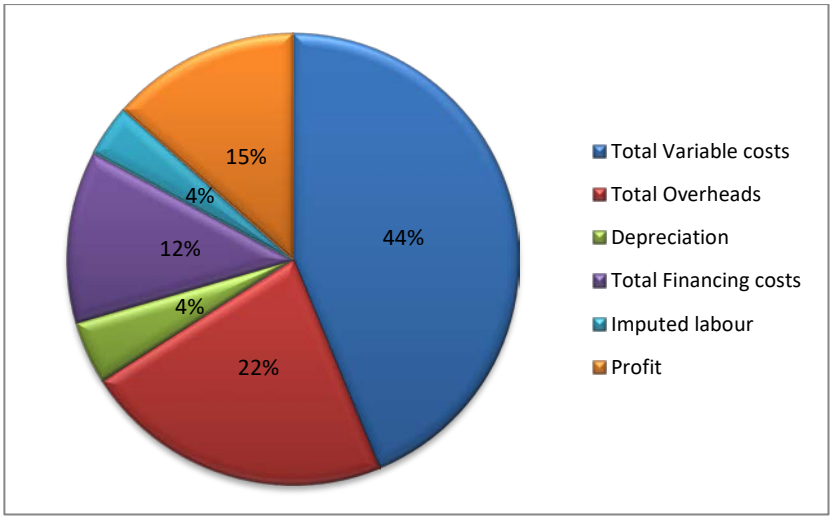


Figure 2: Costs and profit as a % of whole farm turnover for the average of the dataset

The striking difference between the two datasets is the contribution and investment in variable costs. For the Top 20% variable costs are kept down to 30% of gross income while for the whole dataset, the proportion of variable costs is 44% of gross income. This is a significant difference which is allowing the Top 20% to retain a much greater percentage of income as net profit before tax.

Due to the lower equity of the Top 20%, financing costs are 15% of turnover for the Top 20% while for the whole dataset, financing costs represent 12% of turnover.The contributions of imputed labour and depreciation are similar for both datasets. Overheads as a percentage of income are 8% higher for the average business in the dataset.

Figure 3 shows the relationship between income and costs and the values achieved by the Top 20% of producers on a per hectare basis and as a percentage of gross farm income.

The percentage figures shown in parenthesis are the figures as a percent of gross farm income for the Top 20% businesses.

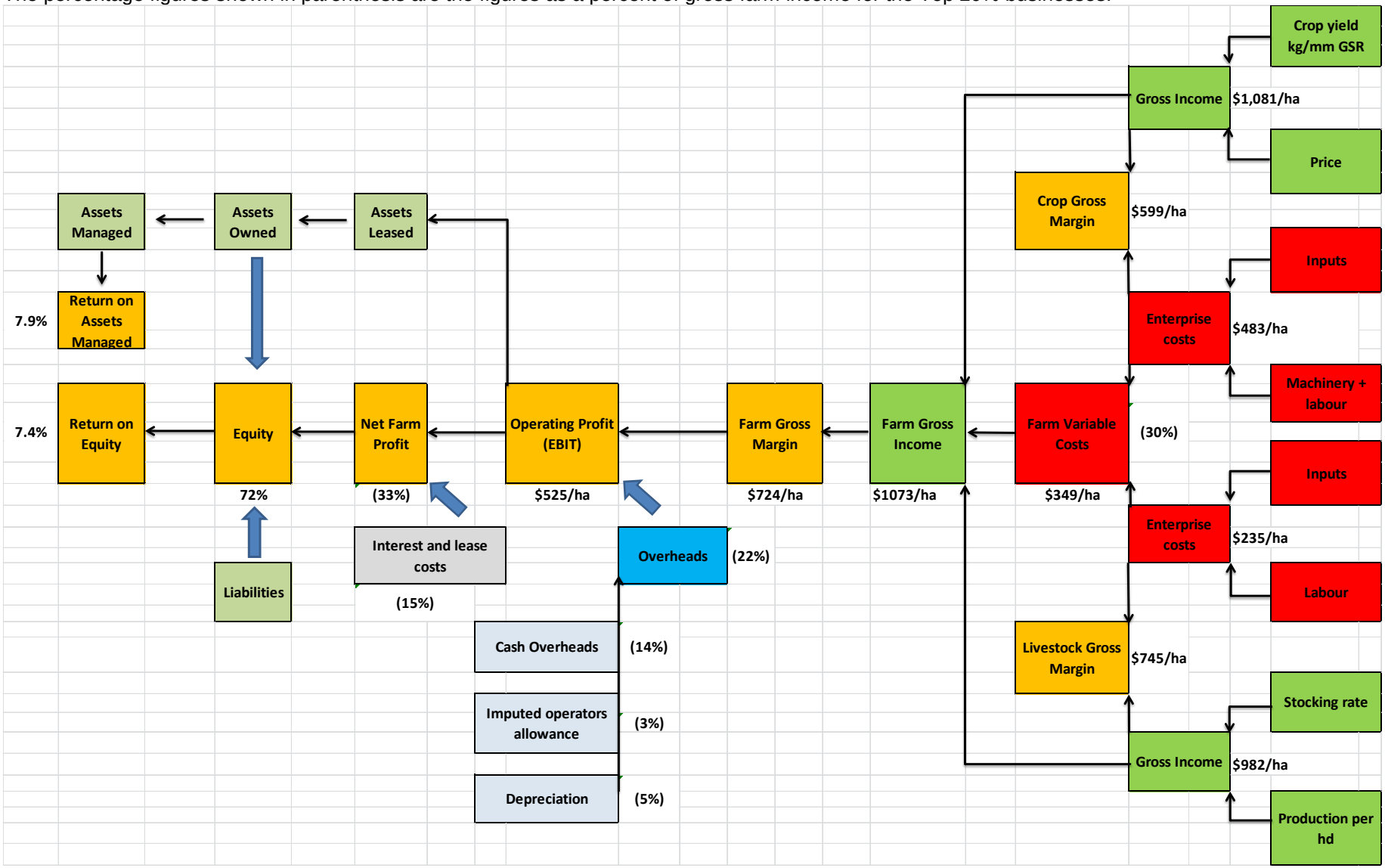


Figure 3: Profit Driver Map for Top 20%.

The project considered four areas that drove a profitable farming system. These were:

- Gross Margin Optimisation
- Low Overhead Cost Business model
- People and Management and
- Risk Management

4. Gross Margin Optimisation

The optimisation of gross margins is a primary profit driver in farm businesses.

a. Whole farm

Table 5: Whole farm per hectare income, variable costs and gross margin

KPI	Top 20% by ROE	Average of dataset	Min	Max
Farm income/ha	$ 1,073	$ 770	$ 435	$ 1,452
Farm income $/ha/mm annual rainfall	$ 1.82	$ 1.42	$ 0.63	$ 2.92
Farm variable cost/ha	$ 349	$ 321	$ 176	$ 522
Farm gross margin/ha	$ 724	$ 449	$ 215	$ 931
Gross margin $/ha/mm annual rainfall	$ 0.41	$ 0.34	$ 0.02	$ 1.39
Farm variable cost % of income	30%	44%	21%	65%

On a whole farm basis, the Top 20% by ROE:

- Are generating around 50% more income per hectare than the average.
- While variable costs per hectare are 9% higher than the average these costs are considerably lower when considered as a % of farm income. The large difference in income has resulted in a 61% increase in gross margin per hectare.

b. Cropping Performance

Table 6: Crop per hectare income, variable costs and gross margin

KPI	Top 20% by ROE	Average of dataset	Min	Max
Crop Income/ha	$ 1,081	$ 914	$ 679	$ 1,432
Crop variable cost/ha	$ 483	$ 563	$ 244	$ 754
Cropping gross margin/ha	$ 599	$ 350	$ 478	$ 821
Crop variable cost % of income	43%	56%	26%	88%

Crop income per hectare is about 17% greater for the Top 20%, while crop variable costs are 14% lower for the Top 20%. This indicates that the Top 20% are more efficient in being able to leverage much stronger levels of income from their investment into variable costs. The difference in gross margin of $249 per hectare is due to the increased crop income of the Top 20%, as well as reduced variable costs. The increased crop income from lower per hectare investment in variable costs is likely to be the result of better timeliness and excellent crop agronomy.

As the gross margin is a reflection of the income generated and the direct costs associated with it, further analysis of the components of these two factors is required to identify opportunities for improvement.

The factors impinging on income generation are yield and price. Yield is a function ultimately of the efficiency with which rainfall can be converted into grain and is influenced by agronomic practices, timeliness, rotations, cultivar selection and external factors such as climatic events.

Price is less manageable. In the survey there was little difference between the Top 20% and the average in regard to price received.

Timely evidenced based inputs are essential to control input costs. Scale and buying strategies can also have an impact.

The various components that influence costs and income are shown in Figure 4.

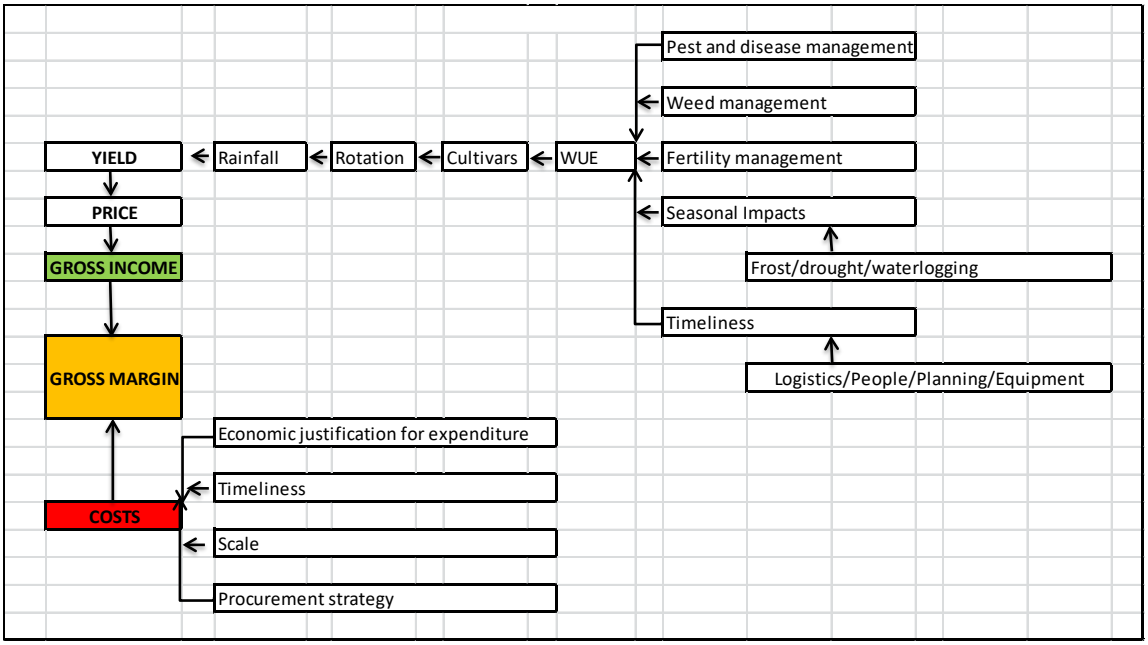


Figure 4: Factors influencing gross margins

Yield factors

Table 7: Crop benchmarks relating to Gross Margin Optimisation

KPI	Top 20% by ROE	Average of dataset	Min	Max
Wheat yield – t/ha	4.1	3.6	2.7	6.3
WUE - wheat kg/ha/mm effective rainfall*	11.53	12.03	7.29	16.41
Wheat cost of production- per tonne	$ 246	$ 228	$ 173	$ 290
Canola yield – t/ha	2.3	2.0	1.0	2.9
WUE - canola kg/ha/mm effective rainfall	6.5	6.8	3.2	8.6
Canola cost of production - per tonne	$ 369	$ 391	$ 283	$ 600

* Effective rainfall in this project has been taken to mean 25% of the rainfall from November to March and 100% of the rainfall from April to October

Wheat yields for the Top 20% were 4.1 t/ha compared to 3.6 t/ha for the average of the data set, while canola yields were also higher at 2.3 t/ha compared to 2.0 t/ha for the average. Water use efficiency was very similar across the group, with the Top 20% slightly less than the average. This may indicate there is some further upside in terms of yield optimisation by the Top 20%.

The cost of production of wheat for the Top 20% growers is slightly higher per tonne than the average. It should be noted in this report finance charges are included in cost of production and the lower equity position of the Top 20% in the sample will impact this calculation. The cost of production for canola is lower for the Top 20% when compared to the average.

Variable costs

Table 8 shows the crop variable costs per hectare. With the exception of repairs and maintenance, insurance and fuel, all the other expenditure items for the Top 20% were lower or similar to the dataset average. The higher costs in some categories may reflect the difficulty in allocating costs accurately in a mixed farming system (such as the Top 20%). The high fertiliser costs for the average business in the dataset suggests that these crops may be being fed beyond their potential.

Table 8: Cropping variable costs ($ per cropped hectare)

KPI	Top 20% by ROE	Average of dataset	Min	Max
Contract work	$ 31	$ 81	$ 0	$ 171
Crop Selling costs	$ 7	$ 16	$ 0	$ 34
Crop Insurance	$ 13	$ 12	$ 1	$ 28
Fertilizer	$ 123	$ 157	$ 67	$382
Freight	$ 15	$ 27	$ 1	$ 105
Fuel	$ 71	$ 69	$ 24	$281
Gypsum/lime	$ 9	$ 12	$ 0	$ 39
Plant hire	$ 4	$ 1	$ 0	$9
Plant R&M	$ 51	$ 35	$ 7	$ 78
Seed/seed cleaning	$ 19	$ 31	$ 4	$ 103
Chemicals	$ 83	$ 102	$ 47	$ 240

c. Livestock

Most businesses also ran livestock. Table 9 shows the return per hectare and livestock variable costs as a percentage of gross livestock income (excluding the area of crop grazed)

Table 9: Livestock per hectare income, variable costs and gross margin

KPI	Top 20% by ROE	Average of dataset	Min	Max
Livestock income/ha	$ 982	$ 621	$ 205	$ 1,064
Livestock variable costs/ha	$ 235	$ 175	$ 78	$ 376
Livestock gross margin/ha	$ 745	$ 445	$ 127	$ 827
Livestock variable costs as % income	23%	32%	10%	54%

The livestock income per hectare of the Top 20% of growers is 58% greater than the average. Variable costs per hectare for the Top 20% are 34% higher but as a percentage of income, they are 9% lower in real terms (28% lower in relative terms). The livestock gross margin for the Top 20% of growers is 67% stronger than the average.

As a general comment, livestock gross margins on winter grazed areas are more profitable than cropping gross margins in this dataset. For the Top 20% of growers, the average crop gross margin is $599/ha while their livestock gross margin is $745/ha. For the average of the dataset, the crop gross margin is $350/ha and the livestock gross margin is $445/ha. Some caution is required in the interpretation of this message, as the breeding animals from the livestock enterprise are often run on crop stubbles and residues for up to five months of the year. As a result of this dependent relationship on cropped hectares, it isn't always possible to substitute more livestock for less cropped hectares.

The analyses did not allow the synergies between grazing and cropping to be explored in detail. However there has been an increasing use of grazing cereals and canola in this zone and it is likely that the significant contribution of the livestock enterprise to farm performance is due in part to the opportunity to winter-graze cereals and canola with minimal impact of crop yields.

5. Low Overhead Cost Business Model

The Low Overhead Cost Business Model profit driver is influenced by a farm's structural efficiency. This can be influenced by reaching a suitable critical mass and is potentially also influence by the level of enterprise simplicity. These factors have an influence on machinery utilisation, labour utilisation, and maintaining low general overhead costs.

Table 10 shows the benchmarks relating to the Low Overhead Cost Business Model profit driver.

Table 10: Benchmarks relating to Low Overhead Cost Business Model

KPI	Top 20% by ROE	Average of dataset	Min	Max
Overhead costs per ha	$ 171	$ 145	$ 45	$ 328
Overhead costs as a % of income	14%	22%	7%	58%
TPML costs per ha	$ 270	$ 181	$ 60	$ 321
TPML costs as a % of income	24%	24%	13%	36%

In comparison to the dataset average, the Top 20% by ROE have higher total overhead costs per hectare. Typically in the Southern Region the Top 20% would have lower total overheads, and this is reflected in this sample when comparing overhead costs as a percentage of income, where the Top 20% are considerably lower.

Total Plant Machinery and Labour (TPML) analysis is used to establish the efficiency of machinery and labour utilisation between businesses. The measure allows for businesses with external contractors to be compared to those businesses that use their own machinery.

TPML is calculated from adding the following:

- Contract work
- Freight
- Fuel (net of rebate)
- Hire of plant
- Machinery repairs and maintenance
- Wages and on-costs
- Imputed labour
- Machinery depreciation
- Machinery finance

When assessed against income the Top 20% are similar to the average in their machinery and labour utilisation as demonstrated by having similar TPML as a percentage of income despite having slightly higher TPML costs per hectare. It is worthwhile to note that in dataset for this agro-ecological zone, both the Top 20% and the average of the dataset are operating at a high level of efficiency in regard to TPML costs. It is not uncommon for some businesses in Southern Australia to be investing 35% of income into TPML related costs.

The results from the study for machinery investment to income ratio are shown in Table 11.

Table 11: Machinery investment to income ratio

KPI	Top 20% by ROE	Average of dataset	Min	Max
Machinery investment/ crop income ratio	0.47	0.50	0.11	0.87

The industry standard for a strong business is less than 0.8 to 1.

The Top 20% have a machinery investment ratio of 0.47 to 1, slightly better than the average. This value should be to be monitored. Machinery needs to be adequate for the tasks to ensure timeliness. Some rules of thumb about machinery capital investment indicate that machinery should be capable of sowing the crop in 21 sowing days and that machinery should be capable of harvesting the crop in 21 harvest days. A common trait of the Top 20% is that they are able to achieve greater levels of utilisation from a given investment into machinery through excellent operational and logistics planning and implementation.

Financing costs/debt

Table 12 shows the debt levels and associated finance costs for the businesses in this zone. Finance costs for the Top 20% are 125% ($80/ha) higher than for the total dataset. The Top 20% by ROE in this dataset are quite aggressively positioned in regard to business debt. This strategy can be high risk, particularly if variable cost efficiency and efficient use of machinery and labour cannot be achieved. Businesses with high levels of debt are also more exposed to production shocks such as lower yields years resulting from low rainfall. It is quite unique to see the Top 20% more aggressively positioned in regard to debt in this agro-ecological zone. Across the other agro-ecological zones in the Southern region the Top 20% are generally more conservatively positioned in regard to business debt and debt serviceability.

Table 12: Debt and Finance Cost KPIs

KPI	Top 20% by ROE	Average of dataset	Min	Max
Debt to income ratio	1.9:1	1.5:1	0.1:1	3.5:1
Finance costs per ha	$ 143	$71	$0	$ 174
Finance % income	14%	11%	0%	23%
Lease cost/ha (allocated across the whole farm)	$ 11	$ 13	$ 0	$ 45
Lease costs % income	1%	2%	0%	6%
Lease + finance costs/ha	$ 154	$ 97	$ 18	$ 196
Lease + finance costs % income	15%	12%	4%	23%

The Top 20% have a debt to income ratio of 1.9 to 1 rather than 1.5 to 1. This indicates a lower level of debt serviceability amongst the Top 20% by ROE, a potentially higher risk situation. The Top 20% however are doing an excellent job at optimising enterprise gross margins and keeping TPML costs in check, which enhances their ability to successfully service additional debt and be able to make principle repayments over time.

Finance costs per hectare for the Top 20% are over double those of the average business and are a reflection of the lower equity of the Top 20%.

Overall Farm Performance

The Top 20% are retaining 32% of turnover as net profit before tax, nearly double the average business in the dataset.

Table 13: Summary of Business performance

KPI	Top 20% by ROE	Average of dataset
Operating costs as % of income	47%	66%
Overhead costs as % of income	14%	22%
Depreciation costs as % of income	5%	4%
Imputed labour cost as % of income	3%	4%
Finance and lease costs as % of income	14%	11%
Profit as % of income	32%	17%

Table 14: Return on Equity (ROE) and Return on Assets Managed (ROAM).

KPI	Top 20% by ROE	Average of dataset	Min	Max
Equity	71%	79%	52.0%	98.0%
Return on Equity (ROE)*	7.4%	3.5%	-2.5%	9.0%
Return on Assets Managed (ROAM)*	7.9%	5.7%	1.8%	11.2%

* The data collected and analysed in this management guideline booklet was collected for the three year period between 2011 – 2013. The seasonal conditions experienced over these years will have had an influence over the results achieved in each agro-ecological zone. If seasonal conditions differ from those experienced during this time period, some of the comparisons within and between the zones and regions may change.

Growers were surveyed about their approaches to people and management and also their risk management practices.

6. People and Management

People management, which includes the management of family members, employees, contractors and advisors as a profit driver, is driven by the leadership and communication skills of the business owner/manager.

Getting jobs done on time and to the appropriate standard is a key outcome of good staff management.

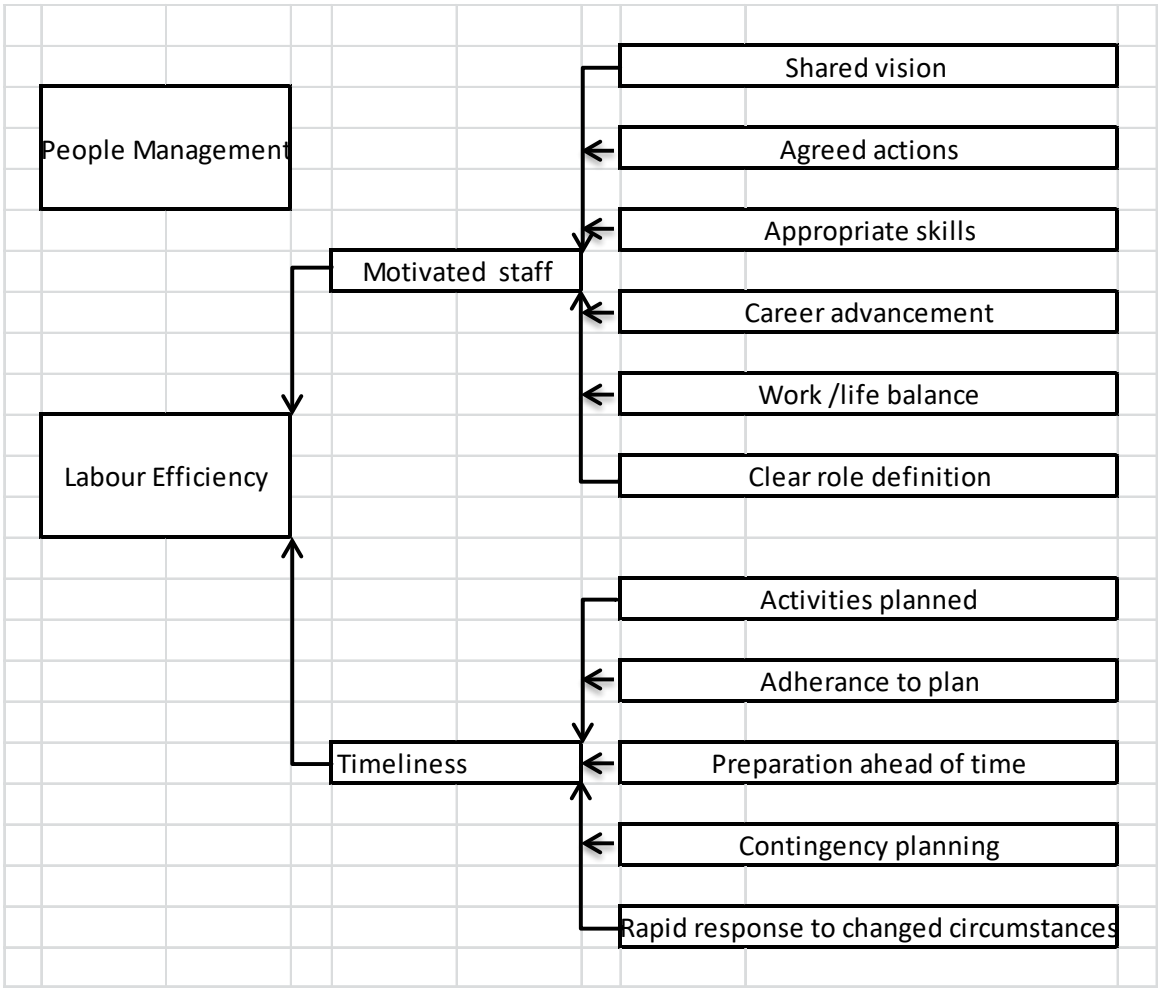


Figure 5: Factors influencing people management

Producers that fell into the Top 20% mentioned job satisfaction, love of the job and the ability to do jobs well as key motivating factors.

The Top 20% are also focused on net profit as a major driver of farm decisions.

There needs to be a clear understanding of the strategic direction of the business by all involved. Key strategic decisions are the enterprise mix, rotations, if, and how, the business will transition from its existing management structure and/or scale, etc. Strategic decisions generally involved the use of decision support tools and often outside professional involvement.

Once a strategic plan is agreed then documentation of annual operational plans will enable the business to focus on achieving a profitable outcome.

Timeliness was a key profit driver mentioned by growers in the Top 20%.

Because timeliness is critical, contingency plans need to be in place to accommodate likely risk events. Decisions need to be made quickly and often without all the information. Growers interviewed stated that while these decisions may not be the absolutely correct decision, procrastination can often lead to a worse outcome through the loss of timeliness. While it was mentioned that often these decisions are made on intuition, or without much formal analysis, in reality they are likely to be based on experience and prior technical knowledge.

The commitment of appropriately skilled people to undertake operations is critical. This impacts not only on how well a job is done, but also on the timeliness of operations.

Except in senior management roles, generally retention for longer than two years is a good result. If the average is less than two years, further investigation is required. One aspect may be workload. Some guidelines for hours worked are shown in Table *15*, noting that award hours are 1976 per year and any hours worked additional to that would need to be appropriately compensated.

Table 15: Guidelines for hours worked per employee

Hours worked per year	Interpretation
< or = to 2500 hours	Acceptable amount of working hours
2500 – 3000 hours	Acceptable with caution*
3000+ hours	Alert, consider how hours may be reduced*

7. Risk Management

Management of risk is an integral component of farming operations, influencing all aspects such as production, staff management, and even long term business viability.

Risks can be grouped into strategic, business and operational risks. Too often the focus is on the operational risks with the other two being ignored or taking a lower priority.

Strategic risks are those that influence the long term direction of the business and which are often outside the control of an individual business. These include factors such as changing climate, changing markets etc. Business risks are those which are present but which are inherent in the business, but often require a medium term view of the impact on the business. Examples of business risk include the need to adequately cover debt, choice of enterprise, scale of operation, business profitability and future ownership structures.

Operational risks are those that impact over a shorter time frame and include factors such as anticipating and managing the impact of seasonal weather conditions.

The risk factors are shown diagrammatically in *Figure 6.*

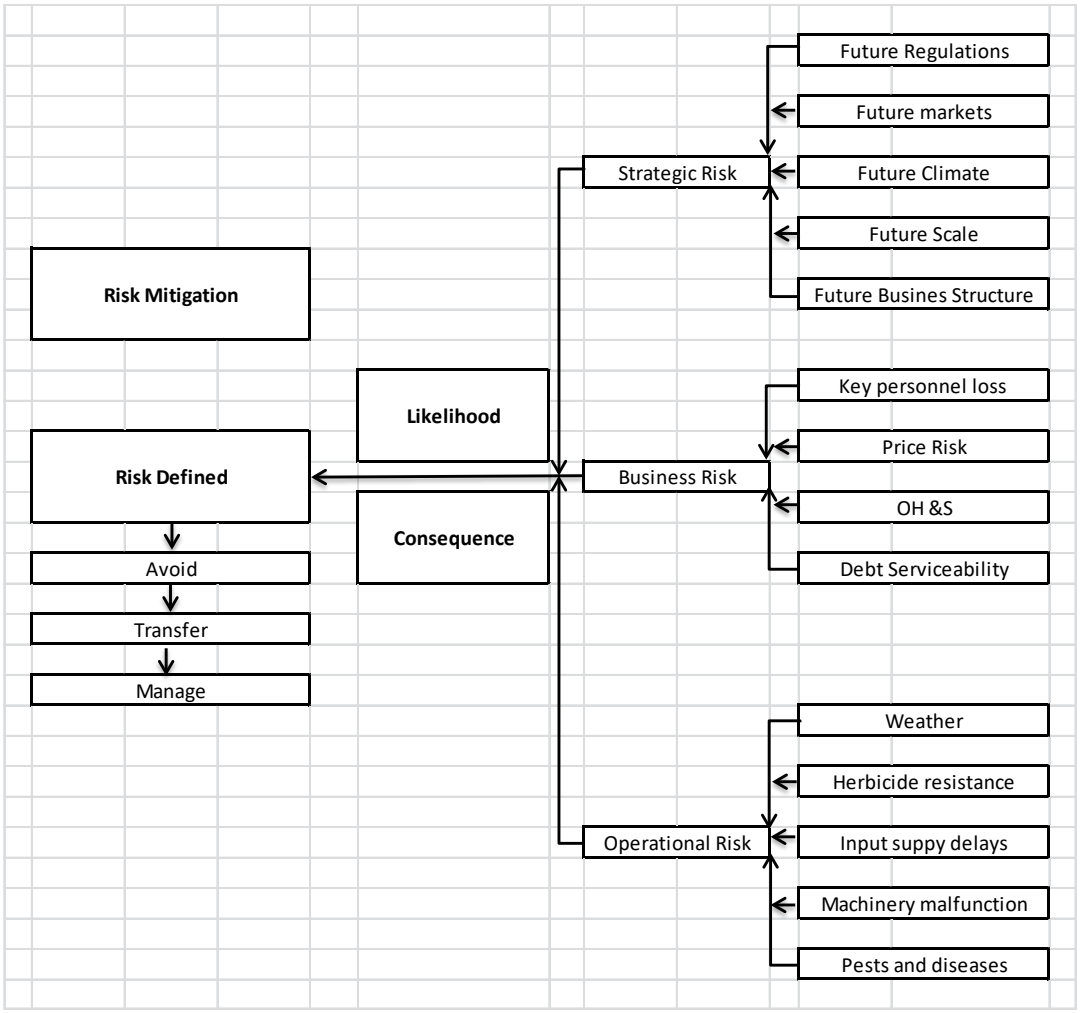


Figure 6 Risk Components

Good risk management involves the development of a Risk Register that categorises events according to their likelihood (rare, unlikely, moderate likely or certain) and according to their consequence (insignificant, minor, moderate, major or catastrophic). An attempt should be made to quantify the categories for the individual business to determine the business's risk appetite. What, for example does "rare" mean: for a particular business: once every 5 years, 10 years, etc? Table 16 and Table 17 below show examples of risk and consequence ratings.

Table 16 Frequency Categories

Rating	Score	Description
Certain	5	Expected frequency once a year or more. May happen several times a year with the defined consequence
Likely	4	Expected frequency every 1 – 2 years
Moderate	3	Expected frequency once every 2 – 5 years
Unlikely	2	Expected frequency once every 5-10 years
Rare	1	Expected frequency less than once every 10 years

The consequence assessment should consider not only financial consequences, but also other impacts such as personnel, reputational effects. Again it is important to put some objective measures around the criteria for the consequence categories. What, for example, would an extreme financial, personal or reputational consequence be for the farm?

An example of risk appetite ratings is shown in Table 17.

Table 17 Consequence Rating Table

Rating	Score	Cost to Business	Personnel	Other
Catastrophic	5	>$250,000	Loss of prime operative	
Major	4	$50,000-$250,000	Staff loss for period of 3-6 months	
Moderate	3	$20,000 - $50,000	Serious injury	
Minor	2	$2,000 - $20,000	Injury	
Insignificant	1	<$2,000	Minor Injury	

Having developed a risk appetite, the next step is to list the risks the business faces and categorise them according to the risk appetite. Eg Decile 2 rainfall year. – major cost to business, and expected to occur every 5 years.

Sometimes a risk will impact across a number of risk areas. Use the highest score in any of the consequence categories and plot the risk assessment on a "Heat Map" (*Figure 6*). This system focuses attention on those risks which are high in terms of impact, allowing plans to be developed to mitigate the risks. Management strategies need to be in place for at least the orange and red sectors and ideally also the yellow sectors.

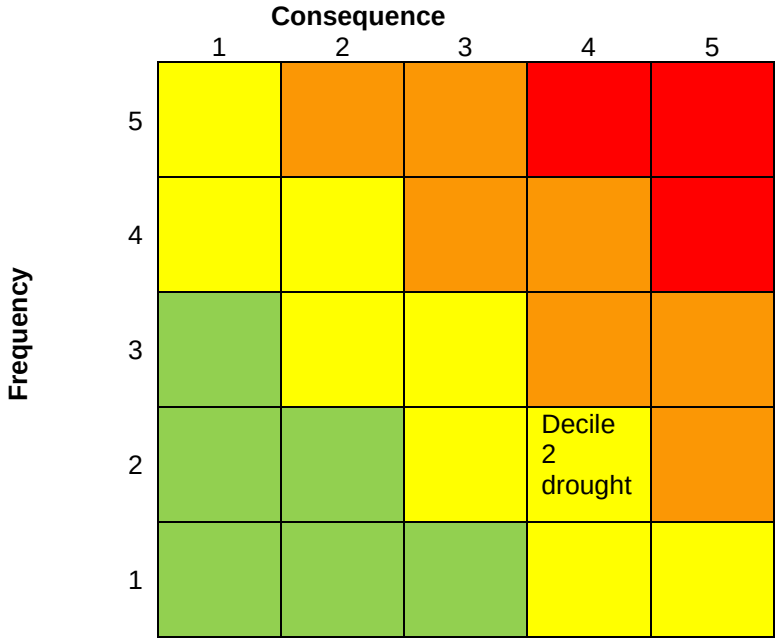


Figure 7: Heat Map

There are three options for risk management:

- Avoidance – eliminate the risk
- Transference – outsource the risk eg insurance
- Mitigation – develop strategies to minimize the risk should it occur or be likely to occur.

8. Business Health Check

a. Gross Margin Optimisation

How do you compare?

	Your Figures	Benchmark	Stretch Target
Useable farm area (ha) A			
Gross farm income B			
Gross farm income/ha B/A = D		**$1,100**	**$1,300**
Farm variable costs C			
Farm variable costs/ha C/A = E		**$350**	**$400**
Farm gross margin/ha D-E		**$750**	**$900**
Variable costs as % income C*100/B		**35%**	**30%**

Use the following worksheet to compare your crop production figures with the data from the survey.

	Your Figures	Benchmark	Stretch Target
Area cropped(ha) A			
Crop income B			
Crop income/ha B/A = D		**$1,100**	**$1,400**
Crop variable costs C			
Crop variable costs/ha C/A = E		**$500**	**$500**
Crop gross margin/ha D-E		**$600**	**$900**
Variable costs as % income C*100/B		**40%**	**35%**

Use the following worksheet to compare your crop production figures with the data from the survey.

	Your Figures	Benchmark	Stretch Target
Rainfall Nov - Mar A			
Rainfall Apr - Oct B			
Growing season rainfall A*.25+B = C			
Wheat yield/ha D			
Wheat WUE D/C		**11 kg/mm GSR**	**16 kg/mm GSR**
Canola yield/ha E			
Canola WUE E/C		**6 kg/mm GSR**	**8 kg/mm GSR**

Use the following worksheet to compare your crop production figures with the data from the survey.

		Your Figures	Top 20%
Wheat yield (t/ha)	**A**		
Area cropped	**B**		
Total Fertilizer cost	**C**		
Fertilizer cost/ha	**C/B=D**		**$125**
Fertilizer cost/t wheat	**D/A**		
Total Chemical cost	**E**		
Chemical cost/ha	**E/B=F**		**$85**
Chemical costs/t wheat	**F/A**		

b. Gross Margin Optimisation Diagnostics

Are you short of the benchmark or looking to hit your stretch target? – Use this diagnostic tool to assist.

1. Income	Yes / No / Comment
Is your income per hectare less than the benchmark for the level of rainfall that you receive? If so:	
Does your seeding completion date compare with best practice?	
Does your rotation:	
- involve a proven sequence of high return crops?	
- limit compromise or yield limiters for each crop type?	
- promote crop health and vigour?	
- allow competitive weeds such as ryegrass to be effectively managed?	
- fit your skill set and machinery capability?	
Are there any physical constraints to achieving higher yields that can be cost effectively addressed?	
- Soil pH through liming?	
- Sodic soils that can be improved with gypsum?	
- Poor drainage?	
- Lacking in macro nutrients?	
- Lacking in micro-nutrients?	
- hard pan to be addressed?	
Does your farming system promote storage of out of season rainfall?	
Does your farming system build soil health and organic matter over time?	
Does crop nutrition and agronomy match crop yield potential?	
Are you proactively monitoring crops for early disease and nutrition intervention?	
Does your harvest capacity allow crops to be harvested in a timely manner with minimal losses?	
Is land type matched to highest and best land use? (consider soil type, frost risk, waterlogging)	

2. Variable cost control	Yes / No / Comment
Are your variable costs as a % of income greater than 40%? If so:	
Are you over investing in fertiliser inputs?	
Do you seek an independent perspective with crop agronomy?	
Does your crop rotation promote more modest investment into chemical and fertiliser?	
Is your approach to machinery usage right to ensure low R&M, low fuel costs, and contracting fees only when needed?	
- Are you only using contractors when the cost of using a contractor is less than the cost of ownership?	
- Have you compared a cost of ownership versus the cost of seeking a contractor for each key pass?	
- Do you have an active program of preventative maintenance?	
- Is your property, machinery, and management approach set up for optimising fuel usage? (paddock size and shape, implement width and capacity, essential passes only)	
Do you limit storage fees and charges by proactively managing grain marketing before and during harvest?	

4. Are you investing more than $25 per tonne of wheat yield per hectare into chemical costs? If so:	Yes / No / Comment
Are you applying an Integrated Weed Management approach that utilises effective measures other than chemical control? (rotation, hay, windrow burning, seed capture or destruction, crop topping)	
Do you control weeds in a timely manner when they are small and easier to kill?	
Do you save expensive chemistries for when they are really needed only?	
Do you seek an independent perspective on chemical inputs and cost effective weed control strategies?	

5. Are you falling short of the Water Use Efficiency (WUE) targets for your area? If so:	Yes / No / Comment
Are you growing varieties that are well adapted to variable seasons?	
Are you conserving out of season rainfall through effective Summer and early Autumn weed control?	
How does your timeliness of sowing compare to the optimum window in your region for each crop type?	
Are you regularly monitoring crops to assess progress and weed, pest, and disease pressure to make early intervention when needed?	

Are you maximising stubble retention and ground cover over the summer and autumn months?	
Are you avoiding unnecessary tillage that results in moisture loss?	
Are you monitoring stored soil moisture each year in your local area?	
Is land use matched to land type and high frost risk country managed accordingly?	

c. Low Overhead Cost Model

How do you compare? - Calculate your overhead costs in the following table.

		Your Figures	Benchmark	Stretch Target
Farm area (ha)	**A**			
Farm income	**B**			
Total overheads (exc labour)	**C**			
Overhead costs/ha	**C/A**		**$180**	**$150**
Overhead costs as % income	**C*100/B**		**12%**	**10%**

Use the following worksheet to compare your crop production figures with the data from the survey.

		Your Figures	Benchmark	Stretch Target
Farm area (ha)	**A**			
Farm income	**B**			
TPML Components				
Contract work				
Freight				
Fuel (net of rebate)				
Hire of plant				
Machinery rep and maintenance				
Wages and on-costs				
Imputed labour (family labour @ $50,000/full time equivalent)				
Machinery depreciation (10% of current value)				
Machinery finance				
TOTAL TPML	**C**			
TPML cost/ha	**C/A**		**$250**	**$150**
TPML cost as a % income	**C/B**		**25%**	**20%**

Calculate your machinery investment ratio in the following table.

		Your Figures	Benchmark	Stretch Target
Crop income	**A**			
Value of machinery investment	**B**			
Machinery investment ratio	**B/A**		**0.5:1**	**0.3:1**

d. Low Cost Production Diagnostics

Consider these questions if your machinery investment to income ratio is higher than 0.8 to 1.00.

	Yes / No / Comment
Have operating costs, such as fuel and repairs, been unusually low or high	
Have there recently been one-off or abnormal repair or fuel bills, or are they likely to stay at current levels?	
Are you a new, growing or stable business?	
Are you leveraging the best possible level of income from your machinery investment through	
- excellent timeliness?	
- a robust crop rotation?	
- good agronomy?	
- applying highest and best land use?	
Does your investment in machinery match the scale of your cropping enterprise?	
Do you have any machinery that is rarely used and surplus to your requirements?	
Does every piece of machinery that you own perform an essential function for your business?	
Is your farm set-up for high machinery utilisation?	
- Large paddock size	
- Rectangular paddock shape wherever possible	
- Block farming of crop types	
- Wide gates and good access	
Are you organised well ahead of time to ensure that you are able to get high levels of productivity from your kit?	
- Preventative maintenance complete well before key operations?	
- Machinery ready to go 2 or 3 weeks before you need to start	
- Do you set a seeding start date that allows for a 25% contingency for unexpected break downs and weather interruptions?	
- Are all employees well inducted to machinery operation before peak periods commence?	
Can you cost effectively increase shift length during peak periods rather than upsize?	
Have you simplified your enterprise mix and number of crop types to avoid unnecessary duplication in machinery capital?	

Can you cost effectively access more land to achieve a greater level of utilisation from your machinery?	
Can you delay your next machinery upgrade and get by comfortably with your existing kit?	
Do you give adequate planning and thinking to logistics management and how to get more from each existing piece of equipment?	
Are you able to observe and review machinery logistics during peak periods, identify bottlenecks, and effectively overcome them?	

e. Debt and Finance

Use the following worksheet to compare your debt and finance figures with the data from the survey.

	Your Figures	Benchmark	Stretch Target
Farm area (ha) A			
Farm income B			
Debt level C			
Debt to income ratio C/B		**1.9:1**	**1:1**
Finance and lease costs D			
Finance costs per ha D/A		**$143**	**$70**
Finance costs as a % of income D/B%		**15%**	**10%**

Use the following worksheet to compare your farm performance with the data from the survey.

	Your Figures	Top 20% (Target)	Average
Operating costs as % of income A		**30%**	**45%**
Overhead costs as % of income B		**14%**	**10%**
Depreciation costs as % of income C		**5%**	**5%**
Imputed labour cost as % of income ** **D**		**3%**	**6%**
Finance and lease costs as % of income E		**15%**	**10%**
Profit as % of income 100- (A+B+C+D+E)		**30%**	**40%**

** Unpaid labour at $50,000 per full time equivalent.

Calculate your return on equity below.

	Your Figures	Benchmark	Stretch Target
Total Assets A			
Total Liabilities B			
Equity (A-B)/A = C		**80%**	**85%**
Farm income D			
Profit as % of income E			
Profit D*E=F			
Return on Equity * F*100/C		**7.5%**	**9.0%**

* The data collected and analysed in this management guideline booklet was collected for the three year period between 2011 – 2013. The seasonal conditions experienced over these years will have had an influence over the results achieved in each agro-ecological zone. If seasonal conditions differ from those experienced during this time period, some of the comparisons within and between the zones and regions may change.

f. People and Management Diagnostics

	Yes / No / Comment
Do you have a strategic plan for the next 5 – 10 years?	
Is it written down?	
Do you have advisor(s) that help review your business on a regular basis	
Is there a written plan for the year	
Do you undertake annual staff reviews	
Do you have job descriptions for all employees in the business?	
As an owner are you satisfied with:	
Your work load?	
Farm performance for the effort you put in?	
Your amount of leisure time?	
If we asked your partner the same questions about yourself, would we get the same answers?	
What do your employees think about	
Their work load?	
Farm performance for the effort they put in?	
Their amount of leisure time?	
When employing staff do you have trouble	
Attracting any applicants	
Attracting good applicants	
Retaining staff for a reasonable length of time	
Do staff have the opportunity to undertake skill development?	

g. Risk management diagnostics

	Yes / No / Comment
Do you have a formalized risk management plan	
Do you have the appropriate insurances in place	
Public liability	
Workcover	
General insurance	
Do you understand the impact of a production loss on your debt structure	
Do you understand the impact of a production loss on your cash flow and debt serviceability	
In how many years would your cost of production allow you to make a profit in the light of variable grain prices?	
Do you have strategies in place to manage the absence /death of key operatives	
Is there a succession plan in place to ensure the continuation of the business	
Do you have a vison about what the business should look like in 5 – 10 years	

NSW South West Slopes Case Study

Table 1 Benchmarks

	Case Study Farm	Average
Farm size	2,497ha	2,306ha
Annual Rainfall	589mm	568mm
Growing Season Rainfall	384mm	304mm
Area leased/sharefarmed	17%	11%
Cropping %	45%	54%
Farm income/ha	$837	$770
Variable costs/ha	$176	$321
Farm variable costs as a % of income	21%	44%
Overhead costs/ha	$66	$145
Overhead costs as a % of income	8%	22%
Profit as a % of income	47%	17%
Cropping GM ($/ha)	$568	$350
Livestock GM ($/ha)	$810	$445
Total Plant, Machinery & Labour (TPML)/ha	$142	$181
Total Plant, Machinery & Labour (TPML) as a % of income	17%	22%
EBITDA/ha	$594	$287
Return on Equity	9.0%	3.6%
Return on Assets Managed	7.9%	5.7%

Brian, together with his family, operate a Top 20% farm in the NSW South West Slopes Zone. The family comprises of Brian and his father Barry, along with their wives.

The area farmed is around the same as the average of the dataset, however the profitability generated is considerably higher. Return on equity is 9.0% compared to the average of 3.6%, and return on assets managed is 7.9% compared to the average of 5.7%. This is despite the business having only 64% equity, compared to the average of 79%.

The high levels of profitability in this business are driven in three main areas – low variable costs, low overhead costs, and to a lesser degree high farm turnover, or income per hectare.

Around 420 hectares are leased. Given the current low equity position, this the most realistic way to increase scale, without the additional finance costs associated with purchase. Leasing additional land allows many of the overheads to be spread over more hectares and helps to achieve an appropriate scale.

45% of the land is under crop, with the rest used to run a Merino based sheep flock, with additional sheep and cattle opportunistically traded when conditions allow. They have recently reduced the crop rotation from 7 – 8 years to 4 – 5 years, allowing greater flexibility in the farming system, and ensuring pastures and crops can perform to their capability.

Total farm income is $837/ha, which is 9% higher than the average. Crop income is actually a bit less than the average, driven by marginally lower yields, and livestock income is considerable higher than the average. While the income is higher overall, it's the much lower variable and overhead costs that drive profitability in this business.

Brian and his family have a low equity of 64%, much lower than the average of the data set at 79%. Borrowing to fund a family succession plan was the main reason the equity is currently so low, with a current focus on paying off debt to get back somewhere around 75% equity. While this low equity and associated finance costs have the potential to stifle profitability, the excellent costs control from Brian in other areas has meant this is not the case. Naturally, finance costs are high, with $113/ha spent on finance. This represents 14% of income and is 59% higher than the average of $71/ha (Table 2).

Table 2 Finance

	Case Study Farm	Average
Equity	64%	79%
Finance Costs/ha	$113	$71
Finance Costs as a % of income	14%	11%

Overhead costs are $66/ha, representing 8% of income, much lower than the $145/ha spent by the average farm, which represents 22% of income. Good cost control and spreading overheads over additional leased land are ways that Brian is able to reduce his overheads. This represents an appropriate scale and good control over costs.

Total plant, machinery and labour (TPML) are aspects of the overhead costs that represent costs involved in planting, spraying and harvesting the crop. It allows comparison between businesses that structure these operations differently. The business spends $142/ha on TPML related costs, compared to the average of $181/ha. (Table 3) This represents 17% of total income, compared to the average that spend 24%. Following a complete review of machinery operations several years ago, Brian made a conscious decision to alter this part of the business. With the assistance of an external consultant, a fair bit of "lazy" equipment was sold, and new machinery purchased that increased efficiency dramatically. The size of seeding and spraying equipment has been doubled. Much less time is now spent on these tasks, and they can all be performed from within the family, eliminating the need for external labour, or external contracting. An added bonus is the reduced expenditure on fuel, and repairs and maintenance (Table 4). Brian suggests that the new machinery has resulted in him more than halving his fuel use for spraying and seeding.

Table 3 Overhead costs

	Case Study Farm	Average
Overhead costs/ha	$66	$145
Overhead costs as a % of income	8%	22%
Total Plant, Machinery & Labour (TPML)/ha	$142	$181
Total Plant, Machinery & Labour (TPML) as a % of income	17%	24%
Ha managed per FTE	481	974

In addition to the reduced expenditure on contracting, fuel and repairs and maintenance, much less is spent on fertiliser and chemicals. $67/ha is spent on fertiliser compared to the average of $157/ha, while $47/ha is spent on chemicals compared to $102/ha for the average (Table 4). Historically fertiliser was applied on a regular basis, using standard applications. Brian believes that on the adoption of soil testing, along with informed decision making, the farm has been able to reduce its fertiliser use, with very little impact on yields. He also suggests that his larger and more efficient sprayer has allowed him to spray exactly when required, cutting back his expenditure on chemicals. The ability to graze stubbles, has also positively impacted this area of variable cost.

Table 4 Selected Variable costs

	Case Study Farm	Average
Contract Work	$0/ha	$42/ha
Fertiliser	$67/ha	$157/ha
Fuel	$49/ha	$69/ha
R&M	$23/ha	$35/ha
Chemicals	$47/ha	$102/ha

Table 5 shows that yields are only marginally below the average, however water use efficiency (WUE) figures, well below the average suggest that there is still further yield potential that may be extracted. Increase fertiliser use may assist in optimising yields. Brian plants mostly grazing wheat and canola, as these provide him with winter feed, allowing him to rest his pastures. These varieties, and the impact of grazing, may also explain the lower WUE figures achieved.

Table 5 Crop yields

	Case Study Farm	Average
Growing Season Rainfall (mm)	384	304
Wheat Yield (t/ha)	3.5	3.6
Wheat WUE (kg wheat/ha/mm rain)	9.1	12.0
Canola Yield (t/ha)	2.0	2.0
Canola WUE (kg canola/ha/mm rain)	5.2	6.8

Brian and his family have made some big changes in terms of the management of the farm in recent years. The change in machinery has allowed them to simplify their farm system, and reduced the need for external labour. Brian feels quite glad to be relieved of the “stress” of having any employees, citing the reduced red tape for work health safety and employment requirements a major benefit. They have moved to using total contract labour for shearing and crutching, also saving themselves considerable time.

Yearly planning is an important task, with extensive budgets used. Generally major tasks such as shearing, lambing and sowing are known many months in advance. Again the use of larger machinery has allowed for tasks such as sowing and spraying to occur in a timely and efficient way.

Brian considers late frost to be one of the major risks to their business. The use of grazing varieties allows some flexibility in frost mitigation, and if seasonal conditions favour late frosts, they can adjust their grazing strategy accordingly. In the worst case the mixed farm system allows them to sacrifice grain and feed these frost affected crops to livestock. The crop is insured for hail and fire.

While all the canola is delivered off the header, the farm has 800 tonnes of on farm storage capacity for wheat. This allows storage of wheat if Brian believes the price at harvest is not acceptable. 35 – 50% of the wheat crop is forward sold as is a smaller portion of the canola crop.

In summary, despite a lower than ideal equity, Brian and his family run a very profitable and efficient business. They are able to achieve excellent gross margins for cropping and livestock through very low overheads and variable cost control. In particular the upgrading to larger machinery has been a successful step. Despite higher than average finance costs, and slightly lower crop yields the business is highly profitable recording well above average EBITDA/ha, return on equity and return on assets managed.

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