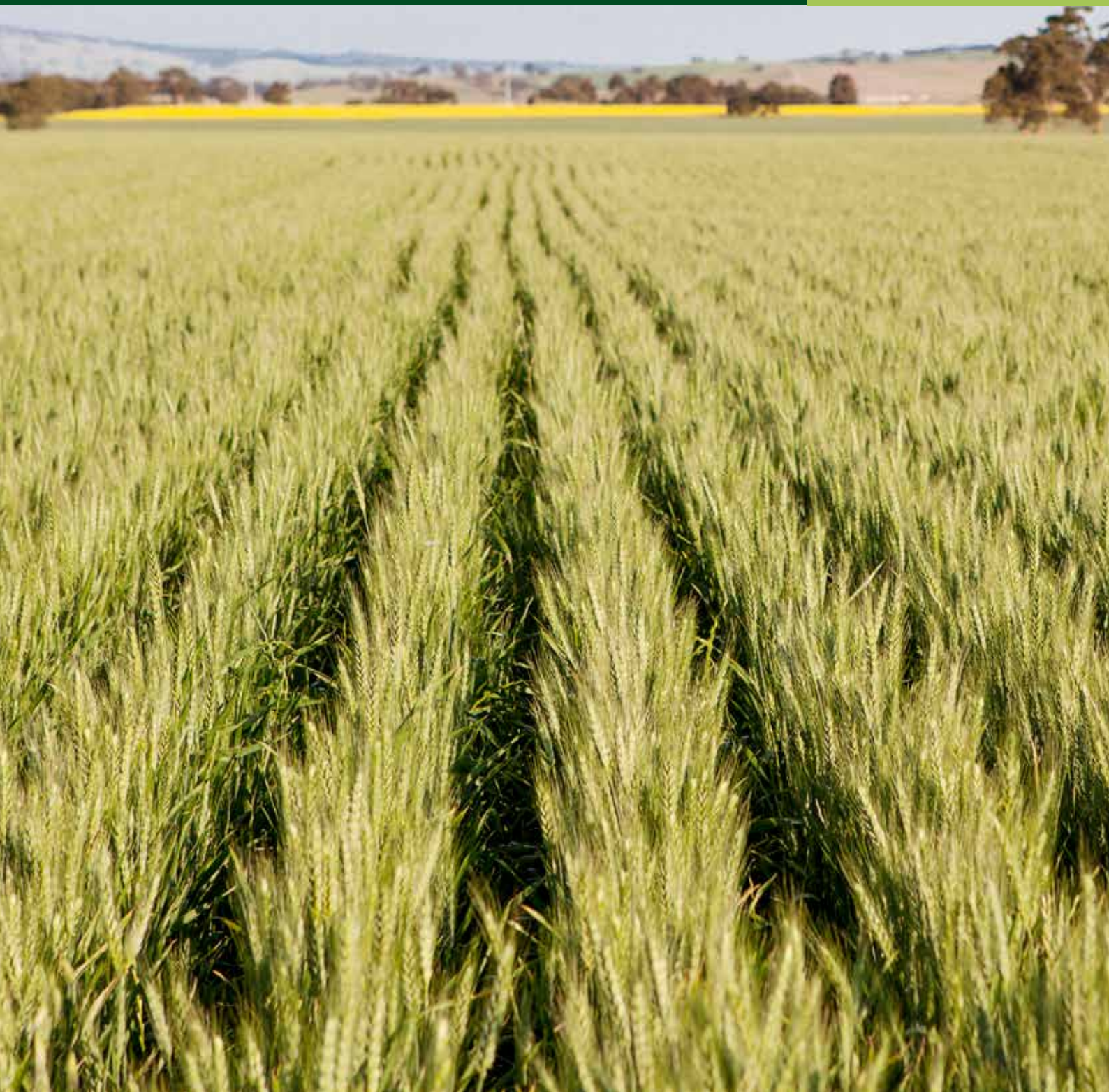
CROPPING ZONE MANAGEMENT GUIDELINE RDP00013

GRDC
GRAINS RESEARCH & DEVELOPMENT CORPORATION

NEW SOUTH WALES CENTRAL



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

GRDC GRAINS RESEARCH & DEVELOPMENT CORPORATION

1. Executive Summary

This Management Guideline for the NSW Central 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 Central zone, the Top 20% have generated an operational ROE* of 9.5% during the three year period analysed between 2012/13 and 2014/15. This is nearly three times the average business in the zone which recorded a ROE* of 3.3% 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 Central zone the Top 20% recorded an operational ROAM* of 10.0%, considerably higher than average business in the dataset at 6.7%.

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 13% higher income on a per hectare basis than the average. The ability to achieve this with lower variable costs, as well as lower depreciation, lower finance costs and greater water use efficiency contribute to the higher profitability of the Top 20%.

Most farms in the NSW Central 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.

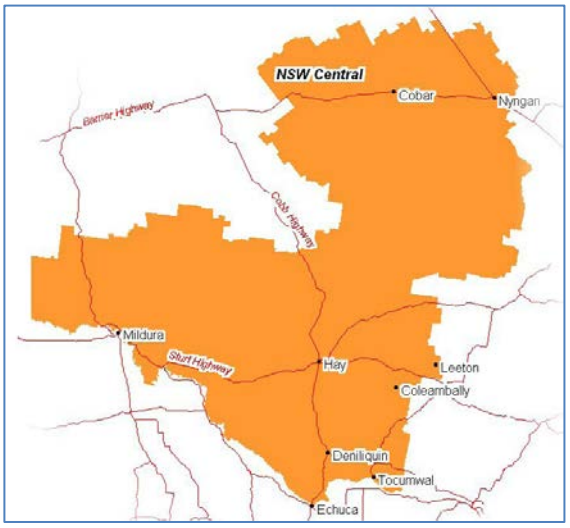
This report will examine each of these profit drivers in detail. At the end of the report is a worksheet that allows individual farmers to compare their own business to the data set to explore areas for improvement.

The purpose of these Management Guidelines are to assist growers to assess the performance of their business against a data set from their region and to help identify the key issues that need to be addressed to lift performance.

To identify the profit drivers in this agro-ecological zone benchmarking results for the Top 20% of businesses, as selected by Return on Equity (ROE), have been used to compare against the average result achieved across the dataset. Three years data was analysed for the businesses.

* 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 loams to light clays. Some of the soils are hard setting and can be sodic.
Rainfall	400mm to 525mm In the southern section of the zone rainfall is predominantly winter based. However at the northern end of the district there is an increasing influence of summer rain.
Average yield	2.23 t/ha for wheat across the dataset collected
Enterprises	The average cropping intensity across the businesses is 50%. On average these businesses have three different crop types in their cropping rotation. The major crop types grown in this Zone are • Wheat • Canola • Barley
Average farm size	3,352 hectares

Table 1 shows the broad operational parameters for the businesses in the data set. The Top 20% business in this data set are smaller, being approximately two thirds the size of the average, and lease more ground. Both groups run a mixed farming system with similar areas to crop each year.

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	2,400	3,552	1,270	6,600
% leased/share farmed	16%	7%	0%	28%
% land to crop	51%	52%	21%	89%

3. Farm Business Performance

The Statement of Position and Statement of Performance summaries for the businesses benchmarked are shown in Table 2, 3 and 4.

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	$ 4,220,373	$ 6,221,239	$ 2,148,143	$ 14,864,853
Total Liabilities	$ 718,523	$ 1,869,011	$ 246,383	$ 7,597,257
Net worth	$ 3,501,849	$ 4,352,229	$ 808,265	$ 7,713,538
Equity	87%	71%	38%	92%

The total assets managed by the Top 20% are about two thirds of those managed by the average business in the data set. This is reflected in the average farm size shown in Table 1. A major difference is the much higher level of equity in the Top 20% (87%) compared to the average of the group (71%).

Table 3: The Statement of Performance for the Top 20% by Return on Equity (ROE).

KPI	Top 20% by ROE	Average of dataset	Min	Max
Total income	$ 1,011,790	$ 1,308,688	$ 391,136	$ 2,554,567
Total variable costs	$ 415,785	$ 598,839	$ 245,017	$ 1,582,806
Gross margin	$ 596,005	$ 711,515	$ 82,329	$ 1,441,423
Total overheads	$ 98,488	$ 199,176	$ 25,639	$ 433,825
Operating surplus	$ 497,517	$ 510,678	$ 56,690	$ 1,202,617
EBIDTA	$ 484,695	$ 482,885	$ 56,690	$ 1,107,677
Depreciation	$ 49,750	$ 95,862	$ 6,700	$ 330,607
Total financing costs	$ 42,242	$ 163,980	$ 21,747	$ 821,312
Net profit before imputed labour	$ 424,203	$ 233,313	-$ 296,708	$ 560,920
Imputed Labour	$ 72,949	$ 77,477	$ 0	$ 146,667
Net profit before tax	$ 351,254	$ 155,837	-$ 296,708	$ 503,569

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	$ 442	$ 391	$ 201	$ 710
Total variable costs per ha	$ 183	$ 187	$ 79	$ 440
Gross margin per ha	$ 259	$ 204	$ 65	$ 360
Total overheads per ha	$ 41	$ 54	$ 20	$ 121
Operating surplus per ha	$ 216	$ 150	$ 31	$ 264
EBIDTA per ha	$ 211	$ 141	$ 31	$ 243
Depreciation per ha	$ 22	$ 28	$ 1	$ 73
Total financing costs per ha	$ 19	$ 49	$ 8	$ 228
Net profit before imputed labour per ha	$ 185	$ 69	$ 0	$ 262
Imputed Labour per ha	$ 30	$ 24	-$ 82	$ 32
Net profit before tax per ha	$ 155	$ 45	-$ 82	$ 235

While the average farm size in the dataset is 50% greater than the Top 20% there is only a 20% increase in total farm income being generated by the average business in comparison to the Top 20%. This suggests that producers who fall into the Top 20% by ROE have a greater asset use efficiency and are doing a much better job at leveraging income from their land base. There is a difference of $200,000 in net profit before tax between the Top 20% and the average. $120,000 of this difference is due to differences in financing costs associated with higher equity of the Top 20%.

The various costs and profit as a percentage of whole farm turnover are shown in the following pie charts

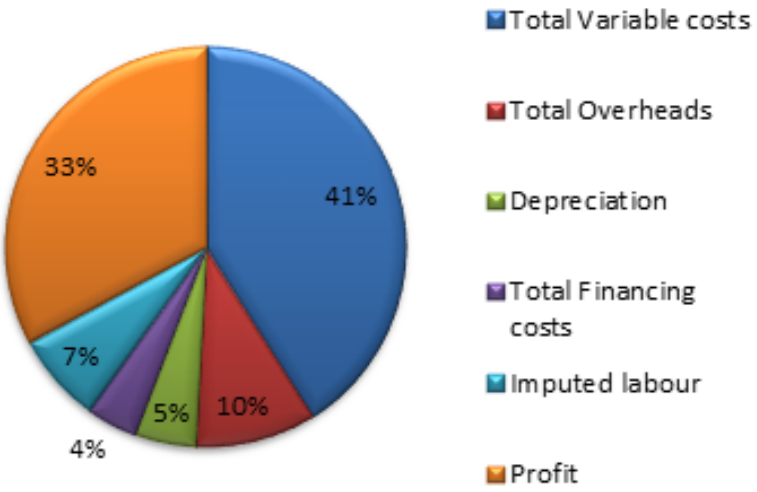


Figure 1: Costs and profit as a % of whole farm turnover for the Top 20% of producers

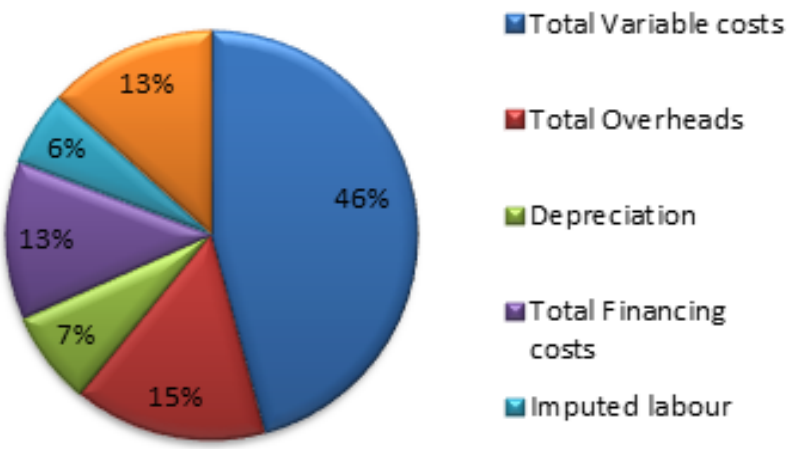


Figure 2: Costs and profit as a % of whole farm turnover for the average of the dataset

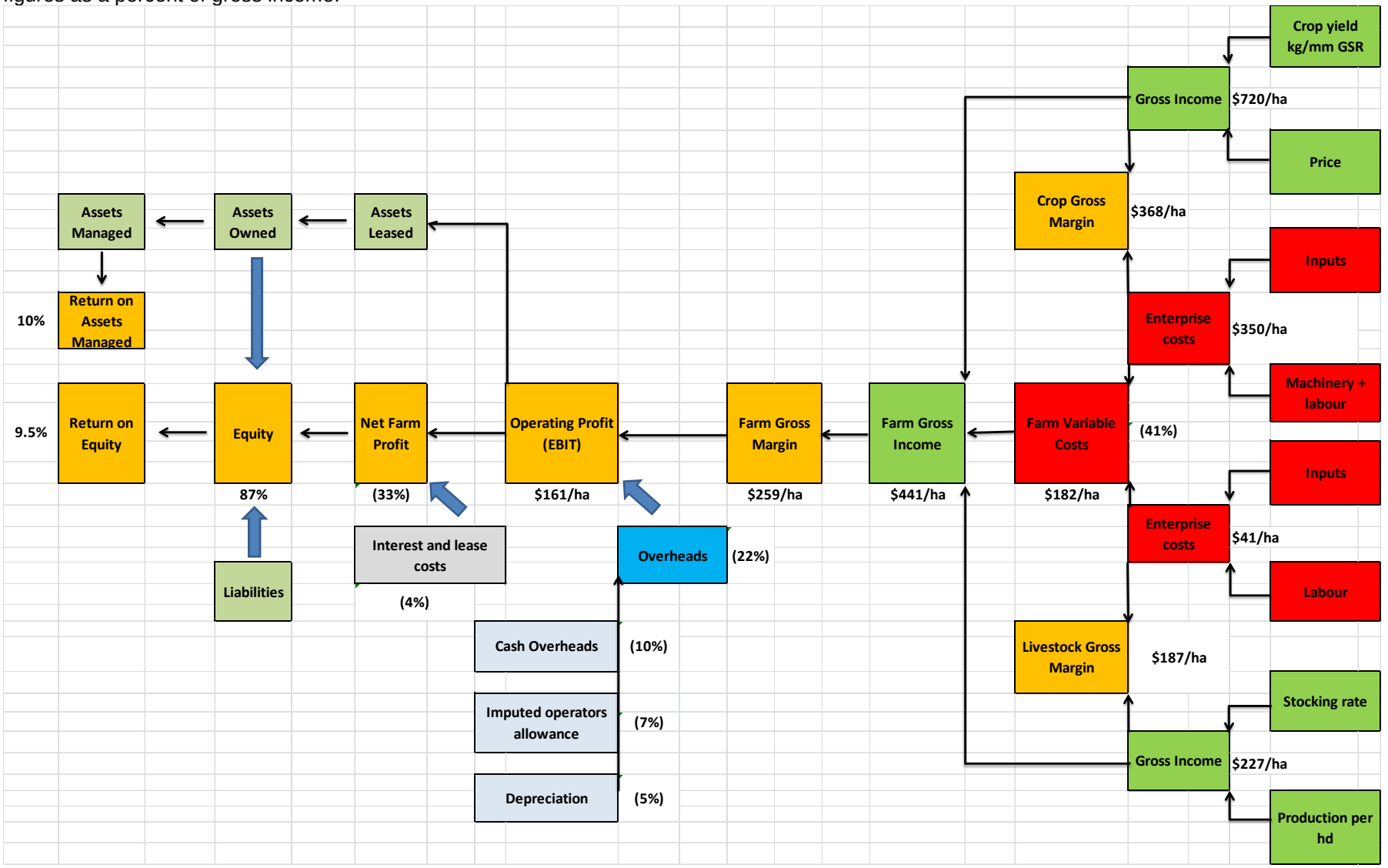
The Top 20% of businesses in the Central NSW agro ecological zone are retaining 33% of their turnover as net profit before tax compared to a retention rate of 13% for the average business in the dataset. The major factors contributing to the greater retention of income by the Top 20% are:

- Lower variable costs as a percentage of turnover (41% compared to 46%)
- Lower overheads as a percentage of turnover (10% compared to 15% of turnover)
- Much lower financing costs as a percentage of turnover (4% compared to 11%). If lease costs are included (Table 11) there is still a lower combined lease/finance cost for the Top 20%

When combined, these factors allow the Top 20% businesses to retain an additional 19% of turnover as net profit before tax in real terms. This is 146% more than the average business in the dataset in relative terms.

The percentage contributions of imputed labour and depreciation are similar across both datasets. However, while there is only a 2% difference in depreciation costs as a percentage of turnover in absolute terms, this represents a 40% difference in relative terms.

The relationship of costs and returns associated with the Top 20% of producers is shown in *Figure 3.* The percentage figures shown in parenthesis are the figures as a percent of gross income.



a. Figure 3: Profit Driver Map for Top 20% of businesses.

The project identified and considered four key areas that drive 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.

Whole farm

Table 5 shows, that on a whole farm basis, the Top 20% by ROE

- Are generating 10% more income per hectare than the average
- Have similar variable costs per hectare in absolute ($/ha) terms but are obviously leveraging much higher levels of income from their investment in variable costs

This leverage has resulted in a 24% better gross margin per hectare for the Top 20% farmers compared to the average producer.

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	$ 442	$ 391	$ 201	$ 710
Farm income $/ha/mm annual rainfall	$0.97	$0.85	$0.43	$1.30
Farm variable cost/ha	$ 183	$ 187	$ 79	$ 440
Farm gross margin/ha	$ 259	$ 204	$ 65	$ 360
Gross margin $/ha/mm annual rainfall	$0.11	$0.07	$0.02	$0.17
Farm variable cost % of income	40%	47%	32%	79%

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	$ 719	$ 573	$ 359	$ 882
Crop variable cost/ha	$ 351	$ 350	$ 236	$ 560
Cropping gross margin/ha	$ 368	$ 223	$ 58	$ 443
Crop variable cost % of income	48%	62%	47%	84%

There is no difference between the crop variable costs in $ per hectare between the Top 20% and the average business in the data set. The Top 20% however are generating a much higher level of income per hectare (additional $146/ha) from their investment into variable costs. The higher income is driven by achieving higher yields.

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

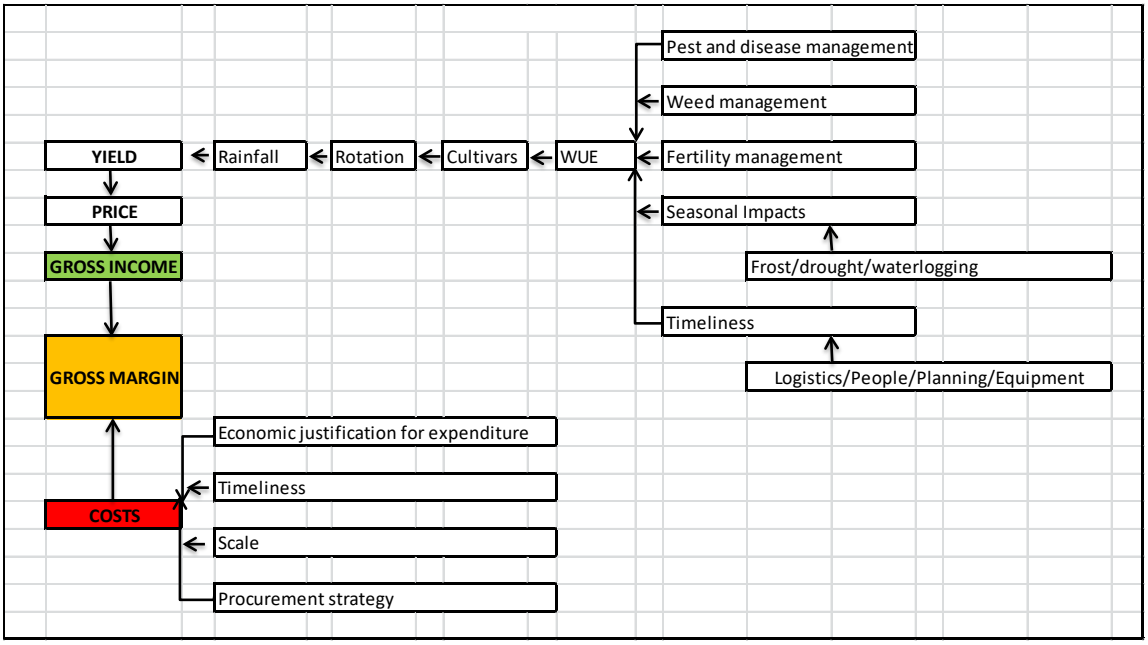


Figure 4: Factors influencing gross margins

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	2.6	2.2	1.3	3.0
WUE - wheat kg/ha/mm effective rainfall*	11.2	9.6	3.6	13.8
Wheat cost of production – per tonne	$ 179	$ 232	$ 148	$ 336
Canola yield – t/ha	1.3	1.2	0.8	1.6
WUE - canola kg/ha/mm effective rainfall	5.1	5.1	2.2	6.7
Canola cost of production – per tonne	$ 381	$ 448	$ 260	$ 562

* 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

The wheat yields achieved by the Top 20% were 2.6 t/ha compared to an average across the dataset of 2.2t/ha. For canola, the respective yields were 1.3 and 1.2 t/ha. Factors such as summer weed control, timeliness of seeding, appropriate nutrition, and good agronomy are the likely elements which are allowing greater water use efficiency to be achieved. The Top 20% also achieved increased water use efficiency for both wheat and canola.

The Top 20% producers achieved a much lower wheat cost of production of $179 per tonne when compared to the average whose wheat cost of production was $232 per tonne. The cost of production for canola was also lower for the Top 20% at $381 per tonne compared to the average of $448 per tonne.

Variable costs

Table 8 shows the crop variable costs per hectare. A number of the variable costs, such as contract work, fertiliser, freight and seed/seed cleaning are slightly higher for the Top 20% when compared to the average. Other categories, such as fuel, plant hire and chemicals are lower for the Top 20%. The higher fertiliser costs may be driving the higher yields achieved by the Top 20%, while other major costs, such as chemicals appear well contained and help contribute to improved overall financial performance.

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

KPI	Top 20% by ROE	Average of data set	Min	Max
Contract work	$ 54	$ 42	$ 0	$ 110
Crop Selling costs	$ 11	$ 11	$ 2	$ 35
Crop Insurance	$ 7	$ 5	$ 0	$ 15
Fertilizer	$ 95	$ 80	$ 46	$ 136
Freight	$ 18	$ 16	$ 0	$ 34
Fuel	$ 30	$ 37	$ 22	$ 78
Gypsum/lime	$ 0	$ 3	$ 0	$ 10
Plant hire	$ 1	$ 4	$ 0	$ 10
Plant R&M	$ 24	$ 25	$ 12	$ 41
Seed/seed cleaning	$ 18	$ 16	$ 1	$ 36
Chemicals	$ 52	$ 56	$ 32	$ 114
Total	$ 320	$ 295		

Livestock

Table 9 shows the return per hectare and livestock variable costs as a percentage of gross 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	$ 227	$ 212	$ 75	$ 428
Livestock variable costs/ha	$ 41	$ 33	$ 10	$ 59
Livestock gross margin/ha	$ 187	$ 179	$ 65	$ 394
Livestock variable costs as % income	18%	17%	8%	30%

In the dataset analysed, it appears that there is little difference in the performance of the livestock enterprises between the Top 20% and the average business in the data set. Given that livestock represent a significant part of the enterprise choice of businesses that are operating in this agro-ecological zone it is important that they are making a strong positive gross margin contribution to help drive overall business profitability. Under performing livestock enterprises have the capacity to erode overall business performance. Opportunistic grazing of cereals is practiced by those farmers with a dual enterprise focus. The analysis did not allow the interaction between grazing and cropping to be explored in detail.

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 influenced by the level of enterprise simplicity. These factors can 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	$ 43	$ 54	$ 20	$ 121
Overhead costs as a % of income	10%	15%	7%	22%
TPML costs per ha	$ 125	$ 148	$ 68	$ 283
TPML as a % of income	30%	39%	26%	52%

Total Plant Machinery and Labour (TPML) analysis is used to establish the overall 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 on an equal footing.

TPML is calculated by adding together the following cost items:

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

In comparison to the dataset average, the Top 20% by ROE are:

- 12% more efficient with general overhead costs per hectare.
- Are 22% more efficient with machinery and labour use, as measured by TPML as a percentage of income.

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

Table 11: Machinery investment to income ratio

KPI	Top 20% by ROE	Average of dataset	Min	Max
Machinery investment/income ratio	0.47	0.66	0.31	1.22

The Top 20% of producers have a machinery investment to income ratio of 0.47 to 1. This is 29% lower than the dataset average for the zone which is at 0.66 to 1. Both are better than the industry average for strong businesses (less than 0.8). The low ratios most likely reflect the influence of mixed farming in this zone and the use of significant income from livestock enterprises in the businesses analysed in this agro-ecological zone. The consistent message however is that the Top 20% have a lower machinery investment to income ratio, without affecting operational timeliness. Greater utilisation from a given investment in machinery is achieved 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.

Table 12: Debt and Finance Cost KPIs

KPI	Top 20% by ROE	Average of dataset	Min	Max
Debt to income ratio	0.6:1	1.4:1	0.4:1	3.4:1
Finance costs per ha	$ 19	$ 49	$ 8	$ 228
Finance % income	4%	11%	3%	29%
Lease cost/ha (allocated across the whole farm)	$ 5	$ 4	$ 0	$ 21
Lease costs % income	2%	1%	0%	7%
Lease + finance costs/ha	$ 24	$ 52	$ 8	$ 228
Lease + finance costs % income	6%	12%	3%	29%

The Top 20% have a debt to income ratio of 0.6 to 1 rather than 1.4 to 1. This indicates a much higher level of debt serviceability amongst the Top 20% by ROE. A debt to income ratio of less than 1.2 is considered strong. The high ratio for the average farm in this agro-ecological zone dataset indicates that the average business in the dataset potentially needs to improve their debt serviceability to a level of less than 1.2 to improve long term business viability.

Over all farm performance

The Top 20% are retaining 33% of turnover as net profit before tax, which is more than double that of 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	52%	64%
Overhead costs as % of income	10%	14%
Depreciation costs as % of income	5%	7%
Imputed labour cost as % of income**	7%	6%
Finance and lease costs as % of income	4%	13%
Profit as % of income	33%	12%

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

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

KPI	Top 20% by ROE	Average of dataset	Min	Max
Equity	87%	71%	38%	92%
Return on Equity (ROE)*	9.5%	3.3%	-7.9%	9.7%
Return on Assets Managed (ROAM)*	10.0%	6.7%	2.3%	11.3%

* 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.

The results of the benchmarking analysis show that the Top 20% of businesses are achieving a 9.5% return on equity* compared to 3.3% for the average business in the dataset.

6. People and Management

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

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.

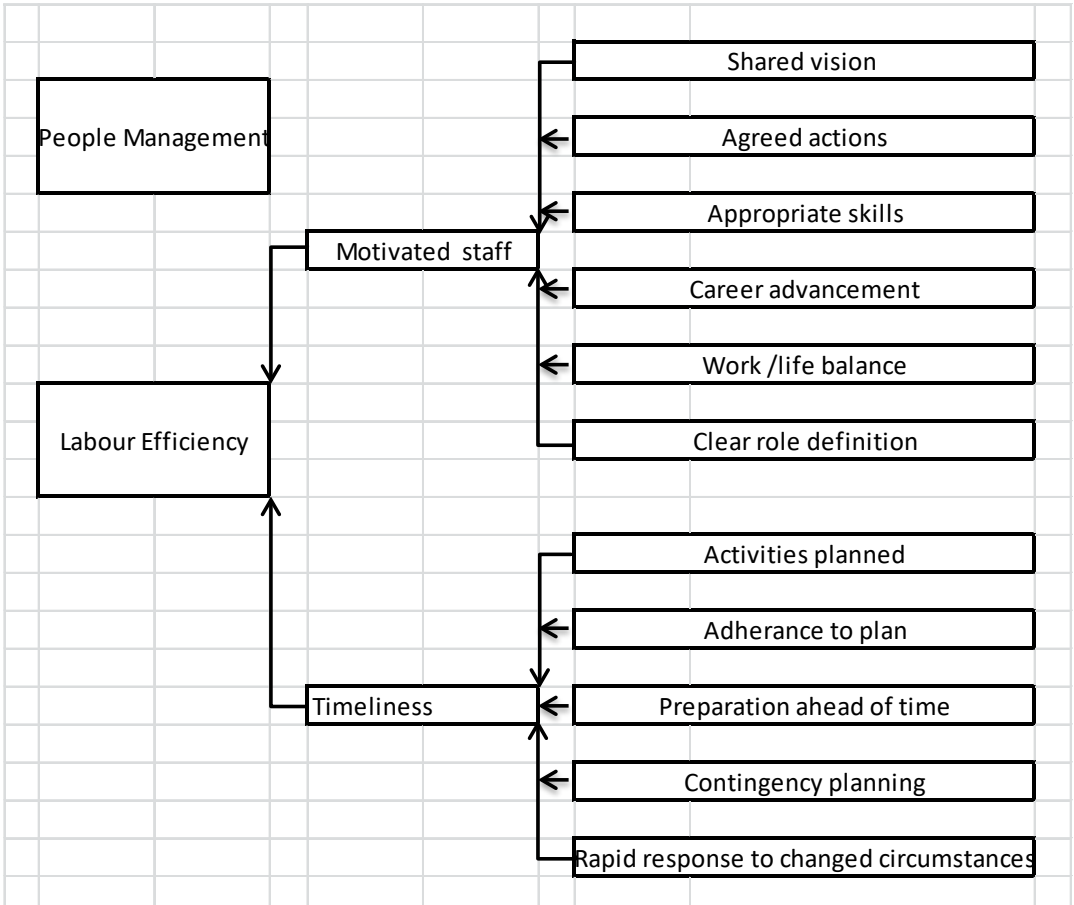


Figure 5: Factors influencing people management

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. Decision 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. Often these decisions are made on gut feeling, but in reality such intuition is 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 1,976 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 2,500 hours	Acceptable amount of working hours
2,500 – 3,000 hours	Acceptable with caution*
3,000+ 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 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

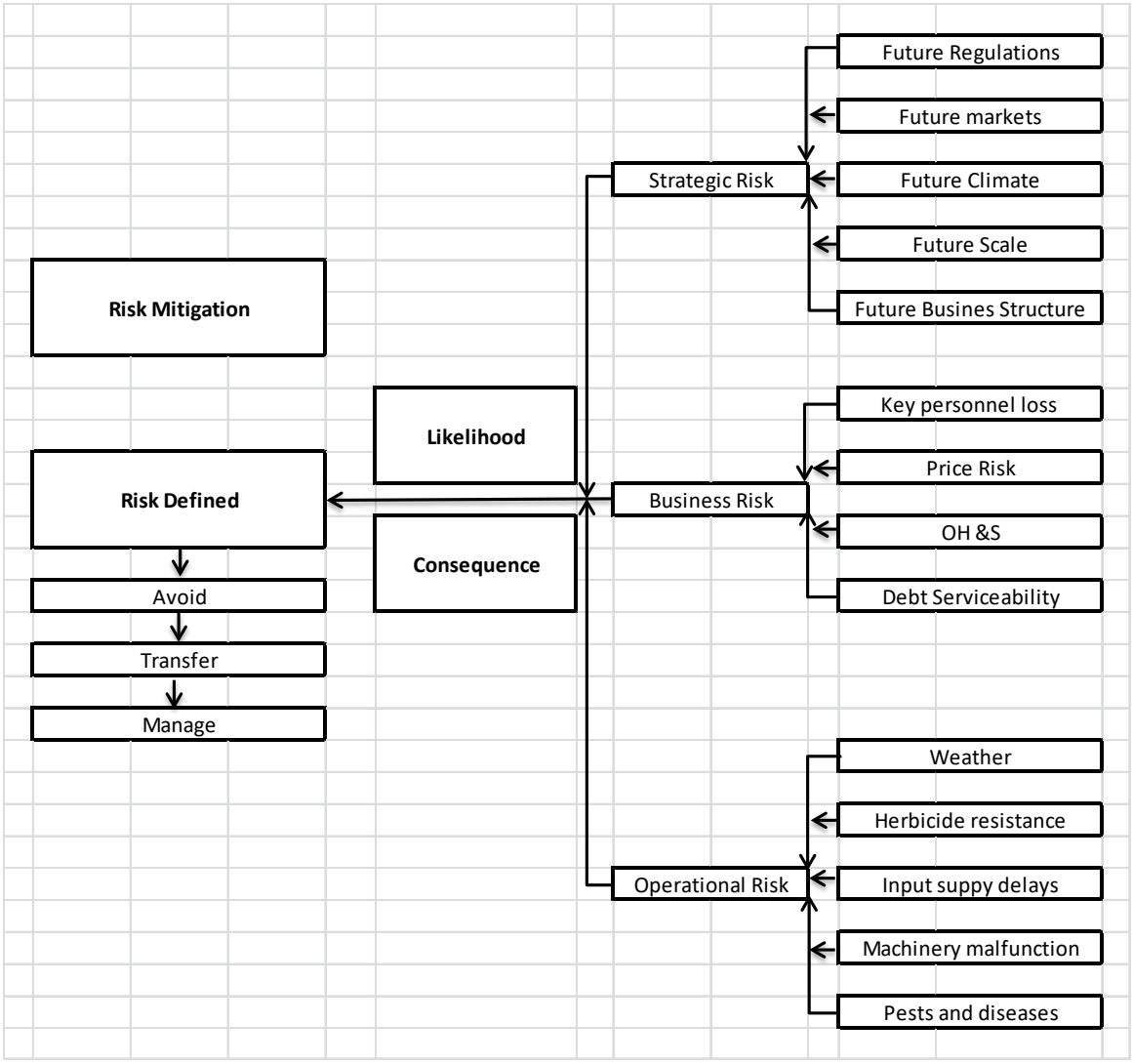


Figure 6. Risk Components

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 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 and 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 your 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* 67). 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. Accurate identification of risks and their impact is the first step to effective mitigation.

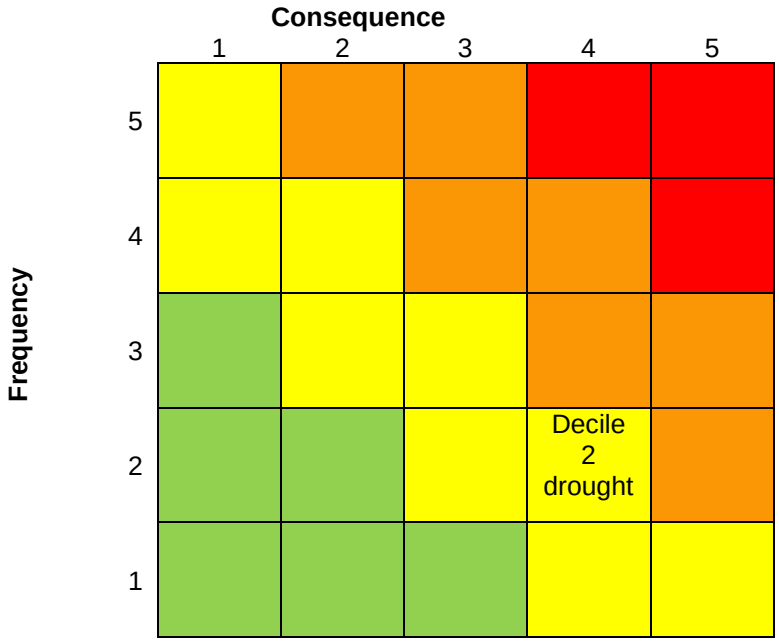


Figure 7: Heat Map

There are three options for risk management:

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

Business Health Check

b. 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**		**$440**	**$600**
Farm variable costs	**C**			
Farm variable costs/ha	**C/A = E**		**$180**	**$150**
Farm gross margin/ha	**D-E**		**$260**	**$350**
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
Area cropped(ha)	**A**			
Crop income	**B**			
Crop income/ha	**B/A = D**		**$700**	**$800**
Crop variable costs	**C**			
Crop variable costs/ha	**C/A = E**		**$350**	**$250**
Crop gross margin/ha	**D-E**		**$350**	**$500**
Variable costs as % income	**C*100/B**		**45%**	**40%**

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**	**14 kg/mm GSR**
Canola yield/ha	**E**			
Canola WUE	**E/C**		**6 kg/mm GSR**	**6.5 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**		**$95**
Fertilizer cost/t wheat	**D/A**		
Total Chemical cost	**E**		
Chemical cost/ha	**E/B=F**		**$50**
Chemical costs/t wheat	**F/A**		

c. 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?	

d. 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**		**$100**	**$80**
Overhead costs as % income	**C*100/B**		**10%**	**9%**

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**		**$125**	**$70**
TPML cost as a % income	**C/B**		**30%**	**25%**

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**		**0.45:1**	**0.3:1**

e. Low Overhead 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?	

f. 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		**0.6:1**	**0.2:1**
Finance and lease costs D			
Finance costs per ha D/A		**$44**	
Finance costs as a % of income D*100/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		**52%**	**64%**
Overhead costs as % of income B		**10%**	**14%**
Depreciation costs as % of income C		**5%**	**7%**
Imputed labour cost as % of income ** **D**		**7%**	**6%**
Finance and lease costs as % of income E		**4%**	**13%**
Profit as % of income 100 - (A+B+C+D+E)		**33%**	**12%**

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

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Calculate your return on equity below.

	Your Figures	Benchmark	Stretch Target
Total Assets A			
Total Liabilities B			
Equity (A-B)/A = C		**85%**	**90%**
Farm income D			
Profit as % of income E			
Profit D*E=F			
Return on Equity* F*100/C		**9.5%**	**10%**

* 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.

g. People and Management

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?	

h. Risk Management

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 Central Zone Case Study

Table 1 Benchmarks

	Case Study Farm	Average
Farm size	2,655ha	3,552ha
Annual Rainfall	356mm	454mm
Growing Season Rainfall	174mm	244mm
Area leased/sharefarmed	8%	7%
Cropping %	41%	52%
Farm income/ha	$250	$391
Variable costs/ha	$92	$187
Farm variable costs as a % of income	34%	45%
Overhead costs/ha	$28	$54
Overhead costs as a % of income	11%	14%
Profit as a % of income	30%	46%
Cropping GM ($/ha)	$293	$223
Livestock GM ($/ha)	$108	$179
Total Plant, Machinery & Labour (TPML)/ha	$84	$148
Total Plant, Machinery & Labour (TPML) as a % of income	34%	39%
EBITDA/ha	$130	$141
Equity	92%	71%
Return on Equity	9.3%	3.3%
Return on Assets Managed	11.3%	6.7%

John operates one of the Top 20% farms, based on return on equity, for the NSW Central Zone. He farms 2,655ha, over two properties, about 25 kilometres apart. 41% of the farms are cropped, and just over 200ha is leased.

The farm is highly profitable recording a return on equity of 9.3%, and return on assets managed of 11.3% (Table 1). This is despite it receiving the lowest rainfall of all the participants, with an average annual rainfall of 356mm. Just 174mm falls over the growing season.

The low rainfall is reflected in the farm income per hectare being 36% lower than the average of the data set. However, John is able to manage his variable and overhead costs to maintain profitability. His overall variable costs are around half the average on a per hectare basis. They reflect only 34% of his income, while the average of the whole data set spent 45% of their income on variable costs.

The low rainfall strongly influences the way that John operates the business. His farming system is extremely flexible, allowing changes to be made according to the seasonal conditions. This is particularly the case for fertiliser and chemical use.

John operates a low overhead farming system. He spends 49% less on overhead costs per hectare than the average of the data set, and this represents only 11% of his income (Table 2). This reflects an appropriate scale of enterprise, and John suggests that the simplicity of his farm, and along with his ability to run the property with help only from his wife, contributes to this. John is able to manage 25% more area per full time labour equivalent (FTE) than the average of the data set. He believes that the scale of his equipment is a major factor in his labour efficiency.

Expenditure on total plant, machinery and labour (TPML) reflects how efficiently John performs the machinery related tasks of the business. Virtually all tasks are carried out by John and his family. The only exception is some truck driving during harvest, and occasional contract harvesting. He owns all his own equipment, and tends to buy machinery that is around ten years old. The lower value of equipment is reflected in a depreciation per hectare figure of less than half the average (Table 2). However, John does spend a bit more on repairs and maintenance (Table 3). John believes that the size of his equipment allows him to efficiently and effectively perform his cropping operations, and that being able to complete tasks quickly and on time has a positive impact on his profitability.

Table 2 Overhead costs

	Case Study Farm	Average
Overhead costs/ha	$28	$54
Overhead costs as a % of income	11%	14%
Total Plant, Machinery & Labour (TPML)/ha	$84	$148
Total Plant, Machinery & Labour (TPML) as a % of income	34%	39%
Ha managed per FTE	1436	1147
Depreciation/ha	$13	$28
Imputed labour/ha	$33	$24

Fertiliser and chemical use tend to be major variable costs in a cropping business. John manages these variable costs very closely and subsequently spends 30% less per hectare on fertiliser than the average of the data set and 21% less on chemicals. John soil tests every couple of years. However, his extensive local experience also tells him that after a very low yielding year he can afford to reduce his fertiliser use.

Despite recording the lowest growing season rainfall in the data set, John is able to achieve wheat yields 9% above the average (Table 5). His water use efficiency is 44% above the average. John is able to leverage higher wheat yields from less variable costs, reflecting not only his skill in operational timeliness, but also his strong agronomic practices. Due to his low, and highly variable rainfall, Canola is a more problematic crop in the area. Therefore, he is only able to achieve yields 25% lower than the average, but still considers it a valuable part of his rotation.

John believes that one area in which he is able to efficiently turn his lower variable costs into higher yields is due to his focus on moisture retention. All his weed control and stubble management are aimed at reducing weed burden and optimising moisture availability for the next growing season. Key times for controlling weeds are pre and post harvest, and following any summer and early autumn rain events.

Table 3 Selected variable costs per hectare

	Case Study Farm	Average
Contract Work	$27/ha	$42/ha
Fertiliser	$56/ha	$80/ha
Plant Hire	$1/ha	$4/ha
Fuel	$21/ha	$37/ha
R&M	$30/ha	$25/ha
Chemicals	$44/ha	$56/ha

His efficient cropping operation has the effect of reducing the cost of production of his crops, and this is reflected by the variable cost expenditure per tonne of wheat produced. On this basis his fertiliser use is 35% below the average and his chemical use 26% below the average of the data set (Table 4).

As a result of his excellent management the cropping part of John's business is highly profitable. He has achieved a cropping gross margin of $293/ha, 31% higher than the average, despite low rainfall.

Table 4 Selected variable costs per tonne of wheat

	Case Study Farm	Average
Contract Work	$11.31	$18.63
Fertiliser	$23.37	$35.94
Plant Hire	$0.49	$1.76
Fuel	$8.99	$16.42
R&M	$12.58	$11.24
Chemicals	$18.44	$25.11

Table 5 Crop yields

	Case Study Farm	Average
Growing Season Rainfall (mm)	174	244
Wheat Yield (t/ha)	2.4	2.2
Wheat WUE (kg wheat/ha/mm rain)	13.8	9.6
Canola Yield (t/ha)	0.9	1.2
Canola WUE (kg canola/ha/mm rain)	5.2	5.1

Although returning a livestock gross margin per hectare 39% below the average (Table 1), livestock are an important part of John's business. He believes that livestock positively compliment his cropping operation, and a pasture phase is a critical part of his crop rotation in his environment. Although the focus on the livestock side of the business is breeding, John likes the flexibility of stock in his drier environment. He believes that livestock are very tradeable and he will offload stock if the season turns dry. It also allows him to either finish lambs and calves himself, or sell them as stores, depending on the season. The farm also has a very small area of irrigated lucernce that allows John to chase markets he might not be able to on a purely dryland system.

One of greatest risks faced by the business is the seasonal variability, especially given the low average rainfall. John has developed a number of strategies to mitigate against a dry year. While he already runs a very low cost business, he has the flexibility to reduce costs even further if need be. The livestock also gives him the ability to reduce numbers as required, but also to provide valuable cash flow. Having a farming system that he is essentially able to operate without paid labour is also an essential part of his risk management.

In summary, John's business is a fine example of where operational excellence and strong cost control is able to manage a very low rainfall to produce above average yield, and generate strong levels of financial performance.

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