



WA EASTERN







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Foreword

This Management Guideline summary of outputs completed within the GRDC **Project** RDP00013 integration of technical data and profit drivers for more informed decisions'. This national project is being delivered across all 14 major grain growing agroecological zones in Australia through the collaborative partnering of consulting organisations.

The Management Guideline aims to assist growers to understand key drivers of profit in their agro-ecological zone, business and compare their benchmarks in order to identify areas of potential development. In addition, there scope assist growers is implementing effective strategies improve efficiencies and boost business financial performance. There is evidently a distinction between knowledge of technical data and the implementation of this data between the Top 20% business and the average business. This has been a focus point in the development of this Management Guideline.

A consistent message from the project is that in each agro-ecological zone there exists a large gap in financial performance between the Top 20% businesses and the average business. There appears to be genuine opportunity for many grain growers to increase profit

from the resources that they currently have available to them.

This particular guideline has been prepared by Corporate Agriculture Australia Pty Ltd on behalf of the Grains Research & Development Corporation.

Please Note: A detailed description of the profit drivers and analysis can be found in the major report 'RDP00013: The integration of technical data and profit drivers for more informed decisions'.

"There appears to
be genuine
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Disclaimer & Seasonal Influence

Disclaimer

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Seasonal Influence

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. A11 information and recommendations presented in this publication should be treated as a guide only and it is strongly recommended that professional financial advice is sought to ensure correction interpretation of the data presented.

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Executive Summary

To understand the key management influenced profit drivers that can be identified through quantitative analysis, a comparison has been made of the actual medium-term results of the Top 20% performing businesses in each zone to the average level of performance achieved across the dataset in each zone. In the Western Region, the Top 20% of businesses have been selected by long term Operating Return on Production

Assets (ORPA). This measure may also be known as Return on Assets Managed (ROAM) in other Return datasets. Equity (ROE) is an alternative measure that could validly be used, **ORPA** however

provides a better indication of return on assets managed (including lease land) without the influence of capital growth.

There are four primary profit drivers that have been identified as driving long term financial performance. These are;

i. **Gross Margin Optimisation**

The Top 20% of businesses in this zone are generating 35% more income per effective hectare and spending 27% less on variable costs as a % of income. As a result, the Top 20% of businesses are generating a 54% greater gross margin per effective hectare.

ii. **Low Cost Business Model**

The Top 20% are significantly more efficient in machinery and labour utilisation (as measured through a TPML benchmark), retaining an additional 4.9% of turnover as potential net profit before tax. The Top 20% are also investing less into machinery per dollar of income, and accessing lease land 34% more cost effectively.

iii. People & Management

The Top 20% generating 32% more turnover per full time employee, and subjectively managing a more timely and efficient business.

iv. **Risk Management**

Difficult to quantify, but from conducting qualitative studies, the consistent theme of the Top 20% is that they are able to manage a more resilient business by actively identifying and mitigating production and business risks.

understanding proactively By and managing the four primary profit drivers, the Top 20% businesses are retaining an actual of 14.5% more profit as a percentage of income compared to the average business.

The Top 20% are retaining

an actual of over 14%

more profit as a % of

income





Agro-ecological zone description

In 1998, the GRDC classified Australia's grain growing zones into 14 major agroecological zones. These zones are listed and outlined in the map below.

- Qld Central
- SE Qld & NE NSW
- SW Qld & NW NSW
- NSW Central

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- NSW-Vic Slopes
- Vic High Rainfall
- SA & Vic Mallee

- SA Mid North Lower York Eyre
- Tas Grain Growing
- WA Northern
- WA Central
- WA Eastern
- WA Sandplain
- WA Mallee

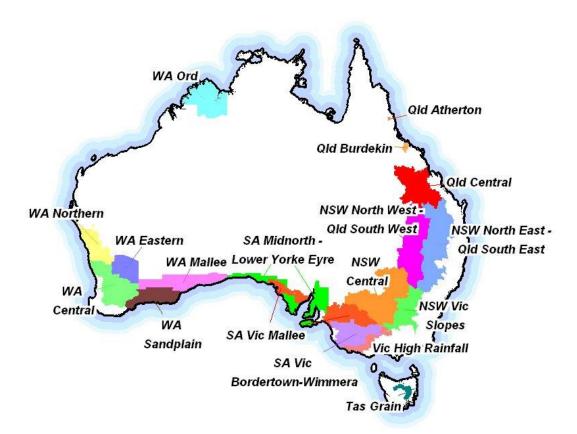


Figure 1: The 14 major agro-ecological zones within the Australian grain growing regions as classified by the Grains Research and Development Corporation.





WA Eastern agro-ecological zone

This is the smallest of the agroecological zone in the Western Region in terms of total size, however it has the third largest croppable area. This zone covers over 2.9 million hectares, of which approximately 1.2 million hectares are suitable to cropping enterprises.

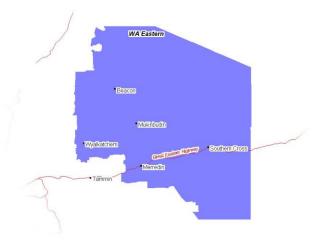


Figure 2: A map of the WA Eastern agroecological zone.

Other key features include;

Soil Type	Sandy earths, to loamy earths, to sandy duplexes
Rainfall	Growing Season is typically April to September Annual Rainfall indications: Beacon – 315mm 70% falls in growing season Wyalkatchem – 330mm 71% falls in growing season Southern Cross – 300mm 55% falls in growing season
Typical Yield	Wheat – 1.0t/ha to 2.7t/ha. Dataset 3yr average is 1.66t/ha Barley – 1.0t/ha to 3.0t/ha. Dataset 3yr average is 1.50t/ha Canola – 0.5t/ha to 1.2t/ha. Dataset 3yr average is 0.58t/ha
Enterprises	78% average cropping intensity across the datasets 19% cropping only businesses 81% mixed cropping and livestock businesses
Average Farm Size	4,780 hectares across the datasets captured (effective land)
Land Values	Land values range from \$450/ha to \$1,250/ha (arable)

In the WA Eastern zone, the Top 20% of Businesses own 14% lower effective land area than the average, and manage (owned + leased/sharefarmed) 26% less

land. However, in terms of cropping percentage of effective ha managed, the Top 20% are cropping 12% greater area than the average.





How do the Top 20% and The Average compare in overall performance benchmarks?

	Average across	Average of Top 20% as	Difference		
Benchmark	WA Eastern dataset	selected by ORPA*	+/-	%	
Return on Assets Managed (R.O.A.M.)* a. Op. Return on Prod. Assets	7.08%	11.50%	4.42%	62.4%	
Return on Equity (R.O.E.)* a. R.O.Farm E*. b. R.O. Business E*.	6.71% 5.02%	12.50% 11.78%	5.79% 6.76%	86.3% 134.7%	
Profit (BT) as a % turnover	8.98%	23.48%	14.5%	161.5%	

Table 1: WA Eastern performance benchmarks.

The following observations can be drawn from the above table;

- The Top 20% are generating an ORPA* that is almost 4.5% stronger.
 - This represents an additional \$45,000 in operating net profit per annum for every \$1 million in assets managed
- The Top 20% are generating a ROFarmE* that is 5.8% stronger than the average.
 - This represents an additional \$58,000 in operating net profit per annum for every \$1 million held in net assets
- The Top 20% are retaining 14.5% more turnover as net profit before tax.

- This results in an additional \$145,000 in net profit before tax per \$1 million in turnover per annum being retained
- The Top 20% businesses are located in a more consistent production area, and the seasonal impacts over the collection period widened the profit as a % turnover gap.

It can also be noted that some business in this agro-ecological zone are retaining in excess of 30% of turnover as net profit before tax.

^{*} 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.





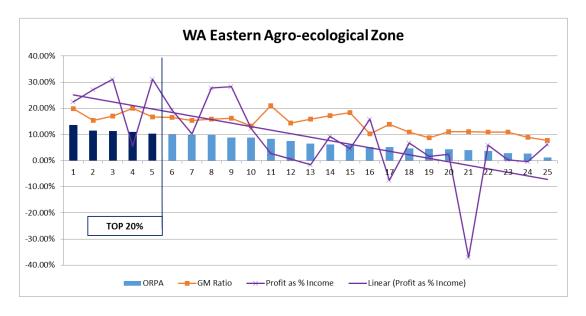


Figure 3: Summary of selected key benchmarks and ratios for the WA Eastern agro-ecological zone.

ORPA = Operational Return on Production Assets*
GM Ratio = Gross Margin to Income Ratio
Profit as % Income = Profit as a percentage of Income

* 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.

Calculating your ORPA

Operating Return on Production Assets (ORPA)				
= Farm Operating Profit_ (Operating profit before interest & tax. Excludes capital growth)	÷ Total Farm Production Assets			
=				





The Profit Drivers

Through analysis of grower information and datasets Australia wide, it has been established that there are four primary profit drivers that can influence the profitability of every farm business. These include:

- i. Gross Margin Optimisation
- ii. Low Cost Business Model
- iii. People and Management
- iv. Risk Management

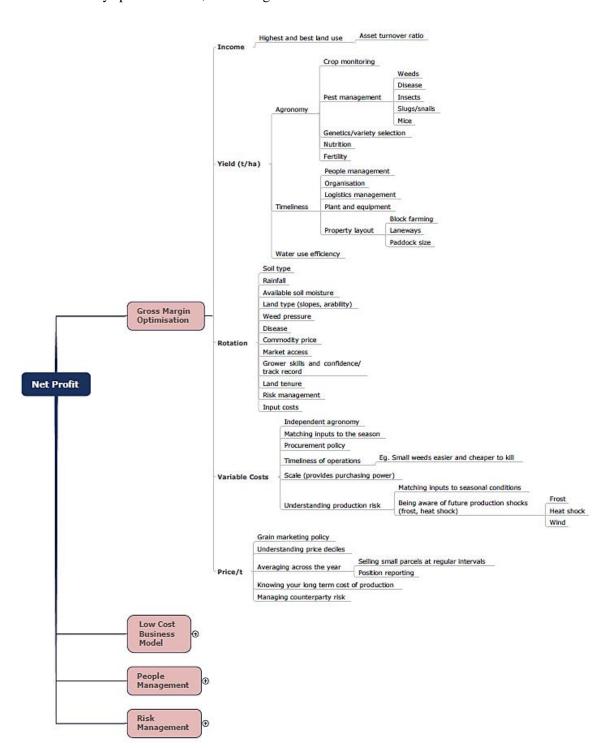
Within these four primary profit drivers, there are a number of secondary and tertiary profit drivers that influence them. identifying, validating, quantifying these secondary and tertiary profit drivers, we can understand which the influence greatest profitability per agro-ecological zone. Ultimately, this understanding become a powerful objective tool to extend to growers to help improve their financial performance over time.





Gross Margin Optimisation

The Gross Margin Optimisation primary profit driver is influenced by five key secondary profit drivers, including total farm income, crop yield, crop rotation, variable costs, and commodity price received.







Benchmark	Average across WA Eastern	Average of Top 20% as	Difference		Your Benchmarks
Denominark	dataset	selected by ORPA	+/-	%	
Ha Owned	3,810	3,332	-478	-14.3%	
Total Effective Ha (owned + leased/sharefarmed)	4,780	3,791	-989	-26.1%	
Total Cropped Ha	3,722	3,296	-426	-12.9%	
Cropping % (of eff.Ha)	77.87%	86.94%	9.07%	11.7%	
Asset turnover ratio *income/total business assets	0.27	0.24	-0.03	-12.5%	
Income per eff.Ha	\$387.25	\$522.33	\$135.08	34.9%	
Complete rotation (\$/Ha/mm AR) a. Income as \$/eff.Ha/mm AR b. Income as \$/eff.Ha/Eff.mm	\$1.26 \$2.09	\$1.65 \$2.70	\$0.39 \$0.61	30.9% 29.2%	
WUE Wheat (kg/ha/eff.mm)	11.86	14.02	2.16	18.2%	
Price received Wheat (\$/t)	\$287	\$295	\$8	2.8%	
Yield Wheat (t/ha)	1.66	1.99	0.33	19.9%	
Variable Costs \$/Crop Ha	\$243.31	\$258.62	\$15.31	6.3%	
Variable Costs as % income *includes, contract work, crop selling and storage, crop insurance, fertiliser, freight, fuel, ameliorants, machinery R&M, seed & seed cleaning, chemicals	62.83%	49.51%	-13.32%	-26.9%	
Fertiliser \$ per cropped ha	\$57	\$57	\$0	0.0%	
Pesticide \$ per cropped ha	\$47	\$54	\$7	14.9%	
Gross Margin per eff.Ha	\$185.05	\$284.80	\$99.75	53.9%	
Gross Margin (\$/Ha/mm AR) a. Op. GM as \$/eff.Ha/mm AR b. Op. GM as \$/eff.Ha/eff.mm	\$0.59 \$0.96	\$0.89 \$1.43	\$0.30 \$0.47	50.8% 49.0%	

Table 2: WA Eastern Gross Margin Optimisation benchmarks.

In WA Eastern, the Top 20% of businesses by ORPA;

- Are generating 35% more income per effective hectare than the average.
 - As a result, are making 29% more income per effective hectare, per effective mm rainfall (\$/eff.Ha/eff.mm) than the average business
- Have an 18% better water use efficiency on wheat.
 - Theoretically supporting the 20% higher yield achieved per hectare

- At average price of wheat, this is adding \$95 of income per hectare from increase in yield
- Expend \$15.31 more per hectare (or 6%) on variable costs than the average.
- Are investing 49.5% of turnover into variable costs rather than 63%.
 - Therefore are 27% more efficient on variable costs as a % of income, resulting in an additional 13% of





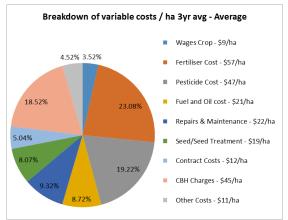
- income potentially being retained as net profit before tax
- Are generating a 54% greater gross margin per effective hectare than the average (\$285 to \$185 respectively).
 - o When analysed further, are achieving a 49% greater gross
- margin per effective hectare, per effective mm rainfall (\$/eff.Ha/eff.mm) than the average business
- Attributed to greater efficiencies in variable cost control and water use efficiency outcomes

Price received per tonne is often considered by growers to be the key profit driver in their business...however from analysing the data captured this is not the case. A disciplined approach to improving gross margins is the key

Variable Costs breakdown

The Top 20% of businesses by ORPA;

- The Top 20% utilising enterprise inputs more efficiently to achieve a 20% higher yield
 - Interestingly equal expenditure on fertiliser \$/Crop Ha,
 - Soil type consistency indicates a similar nutrition requirement, therefore the Top20% are more efficiently applying nutrition to match yield.
- Slightly higher pesticide expenditure
- o Implementation of good agronomic decision-making
- And most importantly are implementing excellent timeliness to maximise WUE (18% higher WUE) to help achieve the 20% increase in yield to support the higher variable cost expenditure



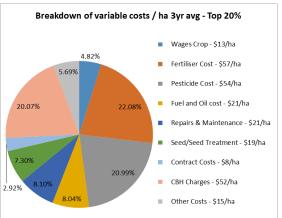
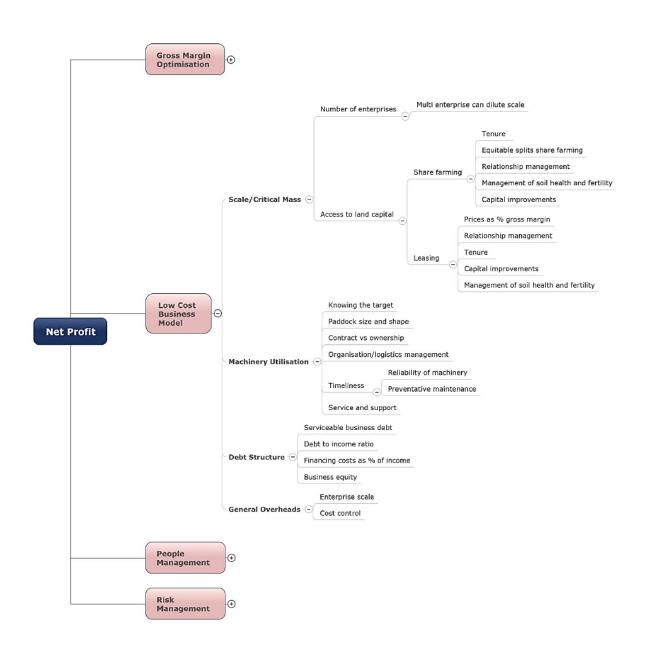


Chart 1: Breakdown of Variable Costs in the WA Eastern zone.





Low Cost Business Model







The Low Cost Business Model profit driver is influenced by a farms structural efficiency. This may include reaching a suitable scale or critical mass, be influenced by the aptitude to access and manage lease and/or sharefarm land, and potentially also the level of enterprise simplicity.

Machinery utilisation, and matching the investment in machinery to the size of the business operations, rather than business scale itself, also has an influence on maintaining lower costs. Scale can be helpful with this, but is not the sole driver of machinery efficiency. Scale also has an influence on labour utilisation and maintaining lower general overhead costs.

Debt positioning with consideration of finance costs, and also values being paid to lease additional land may also have an influence on the low cost structure of the business.

	Average across WA	Average of Top 20% as	Diffe	erence	Your
Benchmark	Eastern dataset	selected by ORPA	+/-	%	Benchmarks
Total Plant Machinery Labour (TPML) a. TPML as a % income b. TPML \$/eff.Ha *TPML includes, wages, fuel & oil, machinery R&M, machinery/plant interest, machinery depreciation, contract work (incl hire & freight), imputed labour (permanent labour unit*\$70,000)	28.97% \$112.18	24.08% \$125.76	-4.89% \$13.58	-20.3% 12.1%	
Machinery investment to income ratio	0.80	0.66	-0.14	-21.2%	
Area leased/sharefarmed %	19.00%	10.88%	-8.12%	-74.6%	
Land lease as a % gross margin	25.81%	19.31%	-6.50%	-33.7%	
Land Lease \$/Ha	\$49	\$57	\$8	16.3%	
Equity %	72.96%	77.58%	4.62%	6.3%	
Debt to Income ratio	1.03	0.91	-0.12	-13.2%	
a. Finance costs as a % incomeb. Land lease costs as a % incomec. Combined costs as a % income	6.74% 2.82% 9.56%	5.98% 1.25% 7.23%	-0.76% -1.57% -2.33%	-12.7% -125.6% -32.2%	
EBIT (\$/Ha/mm AR) a. EBIT as \$/eff.Ha/mm AR b. EBIT as \$/eff.Ha/eff.mm	\$0.27 \$0.41	\$0.56 \$0.88	\$0.29 \$0.47	107.4% 114.6%	
Net Profit (\$/Ha/mm AR) a. Net Profit as \$/eff.Ha/mm AR b. Net Profit as \$/eff.Ha/eff.mm	\$0.19 \$0.28	\$0.46 \$0.72	\$0.27 \$0.44	142.1% 157.1%	

Table 3: WA Eastern Low Cost Business benchmarks.





In WA Eastern, the Top 20% of businesses by ORPA;

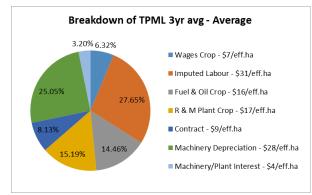
- Are 20% more efficient with machinery and labour use, as measured by TPML as a % income.
 - This potentially allows an additional 4.9% of turnover to be retained as net profit before tax within their business.
- Have a machinery investment to income ratio of 0.66:1.00, 21% lower than the average at 0.80:1.00.
 - o This indicates that for every \$1 million of turnover, the Top 20% of businesses are employing \$660,000 of machinery (\$140,000 less than the average)
- Are leasing/sharefarming a lower percentage of land (11% of land base managed) compared to the average (19% of land base managed). However the Top 20% are accessing that land 34% more cost effectively when lease price is

- considered as a % of gross margin. The average business in the zone is paying 26% of gross margin to lease land, whereas the Top 20% of businesses are paying closer to 19% of gross margin.
- As an absolute \$/Ha figure, the Top 20% are paying 16% more to lease this land; \$57/Ha compared to \$49/Ha (likely due to this lease land being in more productive areas)
- Have finance and lease costs of 7.23% of income compared to 9.56% of income for the average business.
- Have a debt to income ratio of 0.91:1.00 rather than 1.03:1.00.
 - This indicates a higher level of debt serviceability amongst the Top 20% by ORPA

TPML breakdown

It is interesting to compare the TPML cost components of the Top 20% of businesses and the average business. There is considerable difference in TPML expenditure between the average and the

Top 20% businesses in this zone, however the Top 20% appear able to benefit from dispensing this over more cost effective lease land, and the higher cropping %.



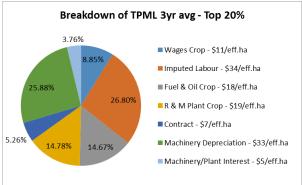
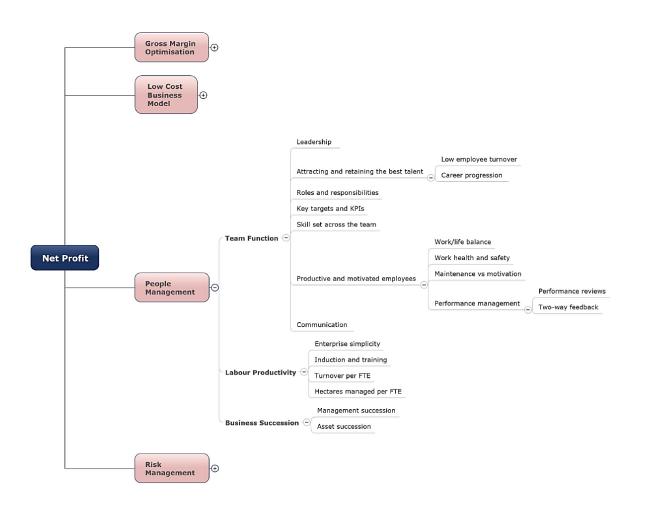


Chart 2: Breakdown of TPML Costs in the WA Eastern zone.





People and Management







The People and Management profit driver is influenced by the productivity of permanent and casual labour, business succession and management, and also the function of the team. Some aspects of function include the leadership, roles and responsibilities, communication, and skill

across the production and management team. This profit driver can also be influenced by the ability of the business management to make the correct decisions for the business in high pressure situations.

Benchmark	Average across WA Eastern dataset	Average of Top 20% as selected by ORPA	Difference		Your Benchmarks
Turnover per FTE	\$790,325	\$878,244	\$87,919	11.1%	
Ha managed per FTE	2179	1833	-346	-18.9%	
Turnover per FTE per Ha	\$363	\$479	\$116	32.0%	

Table 4: WA Eastern People and Management benchmarks.

In WA Eastern, the Top 20% of businesses by ORPA;

- Are generating close to \$88,000 or 11% more turnover per FTE. Importantly, they are achieving this additional productivity with 19% less area managed per FTE.
 - Analysed further, this equates to a 32% higher turnover per FTE per hectare
- The increase in turnover per FTE appears to be generally achieved via
- a combination of greater WUE, higher yield, and superior price received per tonne.
- And likely further influenced by non-benchmarked factors such as the skill set and management capacity of the Top 20% and their efficient people and management skills, leading to an increased productivity per hectare.





When it comes to People and Management, in all businesses there are five key functions that ensure positive

management outcomes. These are detailed in the graphic below.

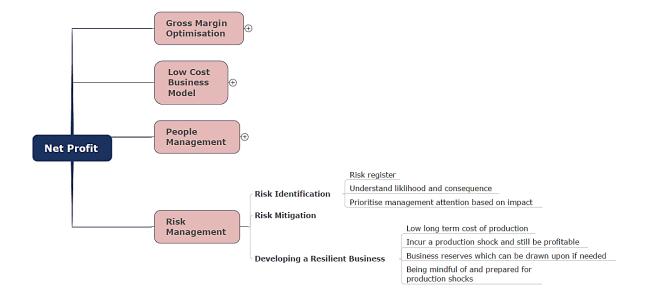


Planning	Deciding what needs to happen in the future and generating plans for actions	0	Operation preparation Enterprise plan Early is key
Organising	Making sure the human and nonhuman resources are put into place	0	Is everything ready? Is everyone informed? Set targets? Stop:Go point
Coordinating	Creating a structure through which the farm businesses objectives can be accomplished	0	Refer to the plan Regular staff discussions Work to objectives
Commanding	Determining what must be done in a situation and assigning people and time to do it	0	Assign the right person Outline task clearly Time management
Controlling	Checking progress against plans	0	Is everything going to plan? Refine the plan? Timeliness is key





Risk Management







The Risk Management profit driver is a critical one. Developing a resilient business in agriculture is necessary to have capacity to absorb production and income shocks, yet still be able to maintain appropriate levels of financial performance. Within each production cycle and across all Australian crop production zones, businesses have to assess and respond to seasonal variation, commodity price fluctuation, and input

cost disparity. Beyond having the capacity to absorb changes in situational risk, a resilient business is one that can identify and mitigate key risks that may arise. Risk Management as a profit driver is also influenced by the other three primary profit drivers, but having the capacity and flexibility to proactively manage business risk is the major element in this profit driver.

The four step process in which a business can proactively manage risk is outlined in the graphic below



Identify the risks that are likely to affect the achievement of your objectives.

Assess the likelihood and consequences of identified risks.

Evaluate the cost effective options for treating each risk.

Monitor/Review the progress & effectiveness of selected risk strategies.





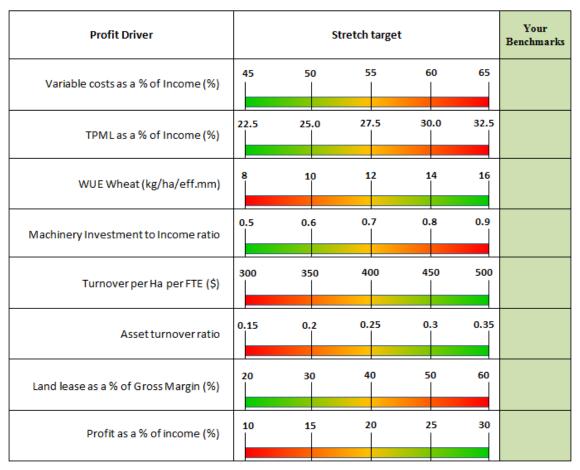
Stretch Targets

Stretch Targets of the key benchmarks in the WA Eastern zone are shown below. The 'traffic light' benchmarks provide an indication of targets you should be looking to achieve based on the performance of businesses in this zone.

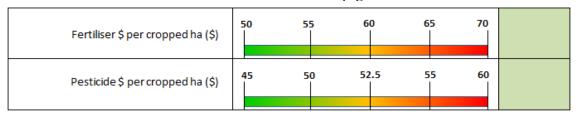
Green = In a good position

Yellow/Orange = In an 'OK' position, but there is area to improve

Red = Need to evaluate position, and assess methods of improvement



*Methods of calculation for the above are shown on pages 28-30.







What does it take to improve?

At risk of stating the obvious, maximising profit in any farm business comes down to three key principles. Irrespective of business scale, geographic location, financial position, or quality of

the farmland asset employed, these three principles drive the ability to produce the outcome for each individual situation. They epitomise what is defined as 'management'.

These three principles are;

1. Discipline –

Diligent cost control and strategic marketing. Developing and sticking to a plan, but not being so rigid as to miss opportunities or waste resources should conditions change. Analysing understanding your business in-depth will allow savings to be made; some may be small, but many small savings help generate a larger profit. Whilst strategic marketing will aid in ensuring sustainable profit margins. Yield and Price are by no means the sole profit drivers, look to focus more on Gross Margin maximisation and reducing business costs.

2. Application –

Matching resources to needs. Inputs, labour and machinery will be driven by numerous factors including average and unfolding seasonal conditions, availability of physical and financial

resources, prevailing and developing agronomic influences and requirements, and operational scale, but the overarching critical influence is to be aware of individual requirements and best matching necessities to minimise risk and costs. Develop and set reasonable targets and consistently meet these targets and you will in turn maximise profit.

3. Timeliness –

Plan and act. Implementing operations and tasks in a timely manner will not just increase efficiency and reduce costs, but will also reduce anxiety, and limit fatigue. The qualitative survey process demonstrated clearly that the technical information was available and flowing freely and growers knew what needed to be done; the key difference between average and better growers being the implementation discipline and ability. Timely implementation is the ultimate key to a profitable business.





Management Traits of the Top 20%

- Actively assess production and business risks
- Have a greater knowledge of the figures (risks & outcomes) related to each management operation
- Better understand individual enterprises
- Often have a simplified production system
- Have prepared a detailed paddock plan prior to the season commencing
 - Have a core rotation but with flexibility
- Establish a seasonal inputs & costs plan that allows for seasonal fluctuations
- Have the required inputs on hand, and labour in place early
- Have maintained, tried and tested all required machines prior to starting
- Are able to activate 'go' point without hesitation
- Have confidence in making, or sourcing, the 'right' agronomic decisions
- O Understands the importance of monitoring crop growth and development stage
 - Allows timely nutritional applications
- o Allows timely pesticide applications
- Allows timely implementation of other crop management tasks
- Know the fertility of their soils and requirements of crops
- Are able to manage staff effectively and proactively, to improve human resource efficiency

- Understand the importance of training, supporting, and managing permanent and casual labour to ensure peak efficiency
- Are open to input from others and will discuss, rather than dismiss
- Are willing to be further informed and educated
 - Personal professional development, attend field days/trial walks, read respected media, keep abreast of (and understand) increasing technology options
- Understand their own strengths and weaknesses; personally and business wise
- Are willing to adopt and strategically implement technology
 - Numerous Decision Support Tools (DST's) available
- Maintain functional and efficient equipment; matched to scale and without significant underutilisation
- Use contractors to fill machinery/staffing/timeliness gaps
- Are willing to engage appropriate professionals
- Forward sell grain and market throughout the year
 - Understand various marketing options
 - Have a disciplined marketing plan
 - Monitor potential yield to evaluate sold position
- Appear to better be able to balance work commitments and family time
 - o Reduce stress and fatigue





Prompt Outcome Case Studies

- Following are three case studies to highlight how some businesses can potentially, and often easily, achieve at least a \$25,000 to \$50,000 improvement in margins.

Case Study 1 - Seeding date

Seeding date is a common focus of many strategy reports and is well represented in cropping trials. Dry sowing is also becoming a more prevalent practice in a challenging environment. Trial results consistently show that an earlier seeding date will likely result in a more consistent germination, and more rapid plant establishment.

Do we really know the potential benefits of sowing early? There are numerous factors that can restrict or allow a grower to sow early i.e. soil type, weed burden, frost risk and others. But all of these can be managed.

A pro-active approach to pre and postemergent weed control, choosing the right variety to sow early and good paddock preparation will all facilitate earlier seeding and the benefits that it produces. There are good Decision Support Tools (DST's) available to show the frost and heat risks associated with the optimal flowering window for production areas. One of the better DST's is called *Flower Power* developed by DAFWA. To calculate a potential outcome of the effect of sowing date as follows;

For every day past the optimum sowing date, it is estimated you will incur an approx. 1% yield loss per day. This represents approx. 20kg/ha/day, and as it gets later into the optimum sowing period the yield loss can increase to 50kg/ha/day. If 50% of your cropping program is delayed by 7 days (and let's use the average cropped hectares in this zone of approx. 3,500ha and assume wheat), this equates to;

1,750ha x 20 kg/ha/day = 35,000 kg / day

x 7 days = 245,000 kg (245 tonne) lower yield potential

@ \$287/t (average price received)

= \$70,000 <u>loss</u> (minimum) due to a delayed seeding date





Case Study 2 - Chemical application

Weed control in modern reduced tillage farming systems is arguably the most important issue in most farming operations, and should have a high priority focus in the seasonal plan. A proactive weed control plan will not only benefit the current year's crop rotation, but will also heavily influence subsequent years cropping and rotation plans; and the profitability of the enterprise.

Controlling weeds early will ensure a crop has the greatest yield potential possible. It will also allow the option of dry sowing in subsequent years. There are many pest control manuals developed by private agronomy companies available that will aid in applying the correct chemical rate and mix. There are also other DST's, such as *WeedSeed Wizard* developed by DAFWA that give an indication of effects of control (or lack of) and potential crop losses now and in the future.

The following is a calculation of the potential effect and outcome of late weed control;

In general effective weed control occurs when the spray operation is completed within 6 weeks of sowing, and often this timeframe could be tighter. minimises competition with the crop and also considers that smaller weeds are easier and cheaper to kill. If weed control is late, and poor chemical efficacy is realised, it can consistently incur yield losses of 0.5t/ha, and often more. Furthermore the associated costs of an additional spray pass and higher application rates needs to be considered. Even if 10% of the program is delayed when sprayed, then based on the average zone cropped hectares of approx. 3,500ha and assuming wheat in this zone, the following may apply;

350ha x 0.5t/ha = 175t lower yield potential

@ \$287/t (average price received)

= \$41,000 <u>loss</u> (minimum) due to poor weed control

Or

\$143 lower income per hectare





Case Study 3 - Nutrition

Soil nutrition and health are the building blocks of any profitable farming enterprise. It is essential to understand the health of soils and apply appropriate products to establish the right nutrient balance. It is not uncommon for farming businesses to be able to reduce fertiliser costs by \$25/ha (by tailoring fertiliser applications) when soil health is adequate. Based on the average cropped hectares in this zone of approx. 3500ha, this equates to;

3,500ha x \$25 per hectare = \$87,500 <u>additional</u> profit per year

Late applications of fertilisers can also be reducing yield and potential income. Crop yields are generally determined early in a plants life, particularly in wheat. Therefore there is added importance to soil test regularly to understand required nutrients and required application rates (to target average yield) so they can be applied early in the season; when most beneficial within 3 – 4 weeks after sowing when plant demand exists.

There are often benefits of later top-up fertiliser applications, and these decisions can be aided by professional agronomy advice and also numerous DST's such as *Yield Prophet*, *NuLogic plant tissue testing* and *Nitrogen Calculator*.

If growing conditions are adequate and fertiliser application occurs at optimal timing, then it is not unlikely to be able to achieve a 10% increase in yield. A 10% increase (or avoid a 10% decrease) in yield over the property can make substantial income gains and profit outcomes. A potential outcome of the effect of timely fertiliser application based on the average cropped hectares in this zone of approx. 3500 hectares and assuming wheat is;

- 3,500ha x 10% yield benefit (0.17t/ha [10% of average yield in this zone]) = 595t
- @ \$287/t (average price received)
- = \$170,000 <u>additional</u> income (potential)





Calculating Key Benchmarks

Effective Hectares (eff.ha) is a combination of both owned & leased land that is considered arable & useable

Overall Performance

Operating Return on Production Assets (ORPA)
= Farm Operating Profit
(Operating profit before interest & tax. Excludes capital growth)
÷
Total Farm Production Assets
(Value of owned land, value of leased land, value of stock, value of plant & machinery, and value of items on hand)
=





Gross Margin Optimisation

Water Use Efficiency (WUE)

Plant Available Moisture (PAM) = effective rainfall (apr-sept/oct) x 0.67 (evap. allowance) + stored moisture* (if determined available) *Stored moisture maximums

Maximum Storage Capacity			
Soil Type	mm/metre		
Light Sand	50		
Good Sandplain (i.e. yellow)	80		
Sandy Duplex	100		
Loam	120		
Clay/Loam	100		
Clay	80		

Asset Turnover Ratio		
= Gross Farm Revenue	÷	Total Business Assets

Variable Costs as a % of Income	
VC = crop costs: wages, fuel & oil, repairs & maintenance, contract costs	s, fertiliser, pesticides, seed/seed treatment, CBH charges
=Variable Costs ÷	Farm Income
=	





Low Cost Business

Total Plant Machinery & Labour (TPM	IL) as a % of Income
TPML = crop costs: wages, fuel & oil, repairs & maintenar and permanent labour units*\$70,000	nce, contract costs, machinery and plant interest,
= TPML	÷ Farm Income
=	
Machinery Investment to Income Rati	io
= Value of Plant & Machinery	÷ Gross Farm Revenue
\rightarrow a ratio of 0.5 i	ndicates that for every \$1m of revenue, nploying \$500,000 of machinery
= The Glower is en	iploying \$500,000 of machinery
Land Lease as a % of Gross Margin	0
= Land lease \$/ha	Operating gross margin/eff.ha
=	
People and Management	
Turnover per Ha per Full Time Equiva	alent (FTE)
FTE = Full Time Equivalent	
=Farm turnover (income)	÷ Full time labour units
=	=



Flowchart Diagnostics



Step 3 Step 1 Step 4 Step 5 Step 2 Primary Profit Strategy Options Implementation Identify Problems or Risk & Business Driver Options growth opportunities Impact Analysis Soil and plant tissue test (3 yearly) Maximise efficiency of inputs Variable costs too high? >60% Resistance test weeds Testing nutrient and resistance Know disease & resistance status status to determine requirements will reduce input costs PreDicta B soil test Late sowing can incur a yield Understand risks/advantages of penalty of 20kg/ha/day (up to plans i.e. dry sowing Set adequate rotation plan & Yields below 50kg/ha/day in areas) enterprise mix average? a 3000ha, 1 week delayed sowing = - WUE too low? 420t x \$300/t = \$126,000 loss Yield x Price Prepare early to start early Short-term and long-term planning · Late weed control can incur losses up to 0.5t/ha Control weeds early (within 6 wks) Actively monitor crop stage and a 0.5t @ \$300/t = \$150/ha loss weed germination/development GROSS MARGIN Achieving highest **OPTIMISATION** price per tonne? · Spend time on the littlethings Set forward sell price targets that make a big difference Know your nutrient status o Soil pH Preparation on track? Sow a paddock o water quality, spraying 2 weeks before start date (test run) o paddock by paddock planning Develop a strategic marketing plan o set stop:go efficiency points Control o seed depth & rate calibrations Set seeding completion target date & Gross Margin too o IWM work backward to establish optimum low? o be timely Focus on gross margins, not yield start date (plus 25% contingency for unplanned hold-ups) Sowing late to avoid frost could be costing income Maximise average rotation profit over 5 years Dry sow low risk crop types to assist early emergence and establishment Income/eff.Ha below benchmark? - Result of Yieldx Spread sowing time to diversify risk Price





Flowchart Diagnostics

Primary Profit Driver	Identify Problems or growth opportunities	Strategy Options	Risk & Business Impact Analysis	Implementation Options
	Isyour Total Plant Machinery & Labour as% of income too high?	Do the numbers -over-capitalised or under- capitalised can both be inefficient	Scale doesn't necessarily increase profit, but can have	Calculate your machinery cost/ha for all major machines Do the figures on enterprise requirement, and machinery
	Is your machinery investment to income ratio too high?	Be sure of machinery purchases -do you need the enterprise specific machine? -is it more cost-effective to use a contractor?	Match machinery investment to scale Leasing land will increase scale	efficiency Calculate cost of contractors and compare to ownership
Is your land lease as a % of income too high? - vs Interest Is your Operational Return on Production Assets below average?	-how will it impact on key ratios? Utilise and maximise permanent labour unit efficiency	and will aid in improving TPML efficiency Will full-time labour be more efficient than seasonal labour? Or vice versa? Purchasing machinery can be a burden, but o will it improve efficiencies & accuracy o can it wait until extra cash is potentially available o breakdowns do cost time and money	If employing permanent labour, loc to employ someone with multiple skills	
	Be aware of opportunities to lease or buy land -ensure the numbers work		Actively seek lease land with the best margin. It's not about the cost \$/ha Don't pay any more than 50% of the	
	-negotiate price & non-price factors Identify the margin between your costs per tonne and the likely price		potential profit margin on a lease Evaluate your needs, and remove unnecessary costs	
	Look to reduce the burden of fixed costs on the business		Shop around for services that offer better price i.e. accountancy	







Step 1 Primary Profit Driver	Step 2 Identify Problems or growth opportunities	Step 3 Strategy Options	Step 4 Risk & Business Impact Analysis	Step 5 Implementation Options
	Isyour turnover per FullTimeEquivalent below average?	Look to refine production system. Simple = greater labour productivity Regular PD for manager and staff	Good staff that are looked after will increase efficiency and turnover	Clearly discuss daily plans with all involved Use technology to simplify tasks and monitoring i.e. synced
	Have you adopted technology to improve efficiencies?	Look to become more of a logistical manager rather than an operational manager if possible	Technology will increase time efficiencies Technology will reduce fatigue for all staff	phones/tablets Ensure training on all machines is undertaken
EOPLE AND MANAGEMENT	Do you have appropriate people management processes in place?	Take the time to understand Safety and OHS requirements All insurances in place i.e. Death & TPD	A well-managed and informed worker will perform well A good relationship between the manager and employee/s will	Seek advice on insurances for both permanent and casual labour. This will also avoid business risk.
d	Do you find it difficult to find and retain qualified labour?	Training to prevent operator errors Refine employment techniques	have positive outcomes Safety is a key responsibility of the property owner	Develop Standard Operating Procedures (SOP's) to assist with training, induction, or absence Attend targeted field days,
	Do you have a succession plan in place?	-spend \$ on employment agencies Develop a succession plan so everyone knows their place within the business		workshops Sit down with a succession planner as soon as possible





Primary Profit Driver Identify P growth op Isyour equal low? <75% Do you act identify an operations Do you act identify an business rise MANAGEMENT Have you implement control me Isyour sea plan flexib	Step 2 Identify Problems or growth opportunities	Step 3 Strategy Options	Step 4 Risk & Business Impact Analysis	Step 5 Implementation Options
	Isyour equity too low? <75%	Manage your equity	Build resilience and put aside	Set debt reduction targets - Minimise capital expenditure until target reached
	Do you actively	Develop a disciplined marketing plan	money to safe-guard from production shocks; if possible • Matching inputs to season	Organise alternative funding if required
	identify and assess price and operational risks?	Be prepared for downtime i.e. breakdowns, inputs run out etc	A 10% drop infertiliser expenditure per crop ha,	Engage professionals to minimise price and business risk
	Do you actively identify and assess	Manage business risk -marketing, finance, tax	equates to a \$9/ha increase in GM (or 3% to GM) o Which = approx. \$27,000 benefit to the average farm • Know the breakeven price of expected yield when marketing grain	Be prepared early to minimise downtime at critical periods
	business risks?	ldentify and rank the risks to your business		Monitor inputs on hand to calibrate usage, and to avoid shortages & wastage
	Haveyou implemented cost control measures?	Bulk purchase of consumables	Equity affects funding. So if equity is too low, debt reduction strategies are essential	Re-visit input requirements and sto on-hand for next year if needed
	Isyour seasonal	Be prepared for seasonal shocks		In seasons with additional funds bul purchase inputs, fuel, parts; if reasonable
	plan flexible?	Target inputs to season. Have a flexible plan. Use Yield Prophet		Assess risks of changes to plan, and evaluate cost-effectiveness of alternative options
	Do you use Decision Support Tools (DST's)	Use DST's i.e. CliMate, Yield Prophet, NuLogic, Flower Power		Use DST's i.e. CliMate, Yield Prophe NuLogic, Flower Power

Flowchart Diagnostics





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