OPPORTUNITY FOR PROFIT

MANAGEMENT GUIDELINE RDP00013

GRDC GRAINS RESEARCH & DEVELOPMENT CORPORATION

WA SANDPLAIN/ MALLEE

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Foreword

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

The Management Guideline aims to assist growers to understand key drivers of profit in their agro-ecological zone, and compare their business to benchmarks in order to identify areas of potential development. In addition, there is scope to assist growers in implementing effective strategies to 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 opportunity for many grain growers to increase profit from the resources that they currently employ"

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. All 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.

GRDC

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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 datasets. Return on Equity (ROE) is an alternative measure that could validly be used, however ORPA provides a better indication of return on assets managed (including lease land) without the influence of capital growth.

The Top 20% are retaining 18% more profit as a % of income

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 28% more income per effective hectare and spending $52 less per hectare on variable costs. As a result, the Top 20% of businesses are generating a 34% 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 3.5% 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 51% more cost effectively.

iii. People & Management

The Top 20% are generating nearly 28% 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.

By understanding and proactively managing the four primary profit drivers, the Top 20% businesses are retaining 18% (relative) more profit as a percentage of income compared to the average business.

Agro-ecological zone description

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

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

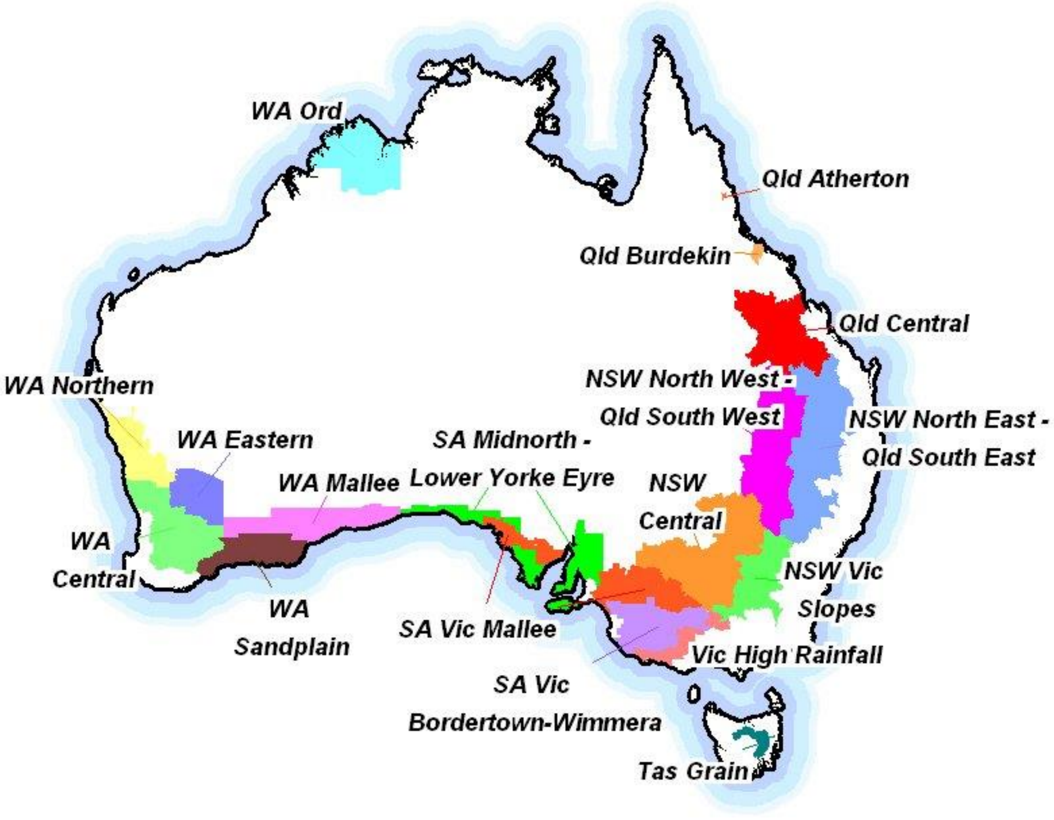

Figure 1: The 14 major agro-ecological zones within the Australian grain growing regions as classified by the Grains Research and Development Corporation.

WA Sandplain agro-ecological zone

For the purpose of this project (and in common with most other GRDC grain related projects) the WA Sandplain and WA Mallee agro-ecological zones have been combined **(All datasets were captured in the Sandplain zone only).** The WA Sandplain zone is cropping dominant, whereas the WA Mallee zone is predominantly pastoral land. The combination of these two zones lends itself to being the second largest 'zone', however is the smallest in regard to croppable area.

This 'zone' covers 4.95 million hectares, of which only 0.8 million hectares are suitable to cropping enterprises.

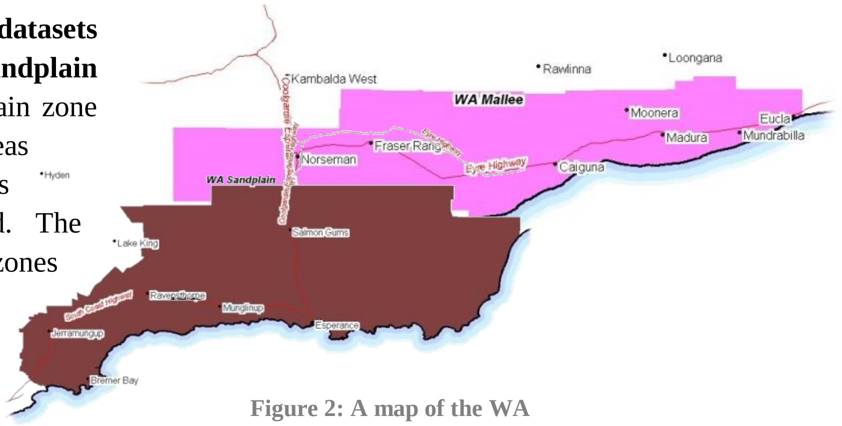

Figure 2: A map of the WA Sandplain/Mallee agro-ecological zone.

Other key features include;

Soil Type	Sandy/loamy duplexes, to grey sandy duplexes (non-alkaline subsoils)
Rainfall	Growing Season is typically April to October Annual Rainfall indications: Jerramungup – 450mm 71% falls in growing season Munglinup – 500mm 70% falls in growing season Salmon Gums – 340mm 68% falls in growing season
Typical Yield	Wheat – 1.5t/ha to 4.0t/ha. Dataset 3yr average is 2.67t/ha Barley – 1.5t/ha to 5.0t/ha. Dataset 3yr average is 2.45t/ha Canola – 0.8t/ha to 2.5t/ha. Dataset 3yr average is 1.18t/ha
Enterprises	83% average cropping intensity across the datasets 43% cropping only businesses 57% mixed cropping and livestock businesses
Average Farm Size	5,075 hectares across the datasets captured (effective land)
Land Values	Land values range from $450/ha to $3,400/ha (arable)

In the WA Sandplain zone, the Top 20% of Businesses own only 3% additional effective land area than the average, and manage (owned + leased/sharefarmed) 10% less land. In terms of cropping percentage of effective ha managed, the Top 20% are cropping 17% greater area than the average.

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

Benchmark	Average across WA Sandplain dataset	Average of Top 20% as selected by ORPA*	Difference	
			+/-	%
Return on Assets Managed (R.O.A.M.)*				
a. Op. Return on Prod. Assets	7.97%	12.08%	4.11%	51.6%
Return on Equity (R.O.E.)*				
a. R.O.Farm E.*	10.34%	13.89%	3.55%	34.3%
b. R.O. Business E.*	12.21%	17.62%	5.41%	44.3%
Profit (BT) as a % turnover	22.00%	26.13%	4.13%	18.8%

Table 1: WA Sandplain performance benchmarks.

The following observations can be drawn from the above table;

- The Top 20% are generating an ORPA* that is 4.1% stronger.
  - This represents an additional $41,000 in operating net profit per annum for every $1 million in assets managed
- The average business is returning 3.5% more ROFarmE.*
  - This represents an additional $35,000 in operating net profit per annum for every $1 million held in net assets.
- The Top 20% are retaining over 4% more turnover as net profit before tax.
  - This results in an additional $40,000 in net profit before tax per $1 million in turnover per annum being retained

It can also be noted that some businesses 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.

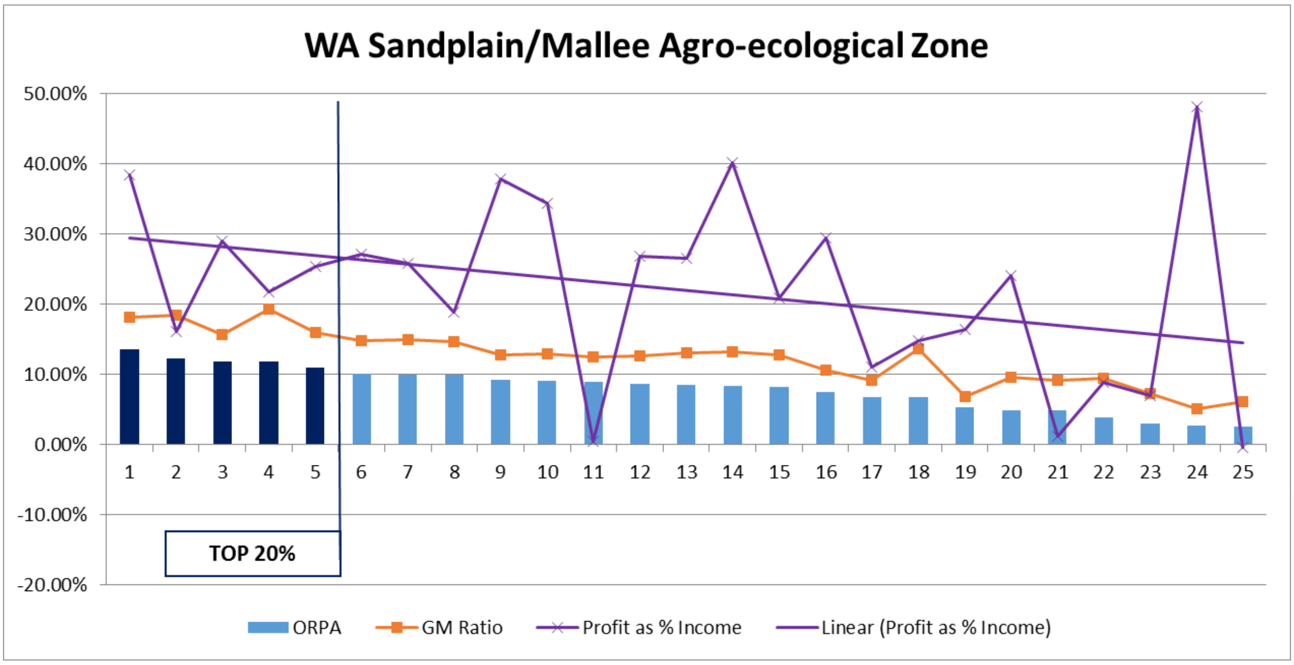

Figure 3: Summary of selected key benchmarks and ratios for the WA Sandplain/Mallee agro-ecological zone.

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

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Calculating your ORPA

Operating Return on Production Assets (ORPA)

= Farm Operating Profit____________________ ÷ Total Farm Production Assets____________________
(Operating profit before interest & tax.
Excludes capital growth)

=__________________________________

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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

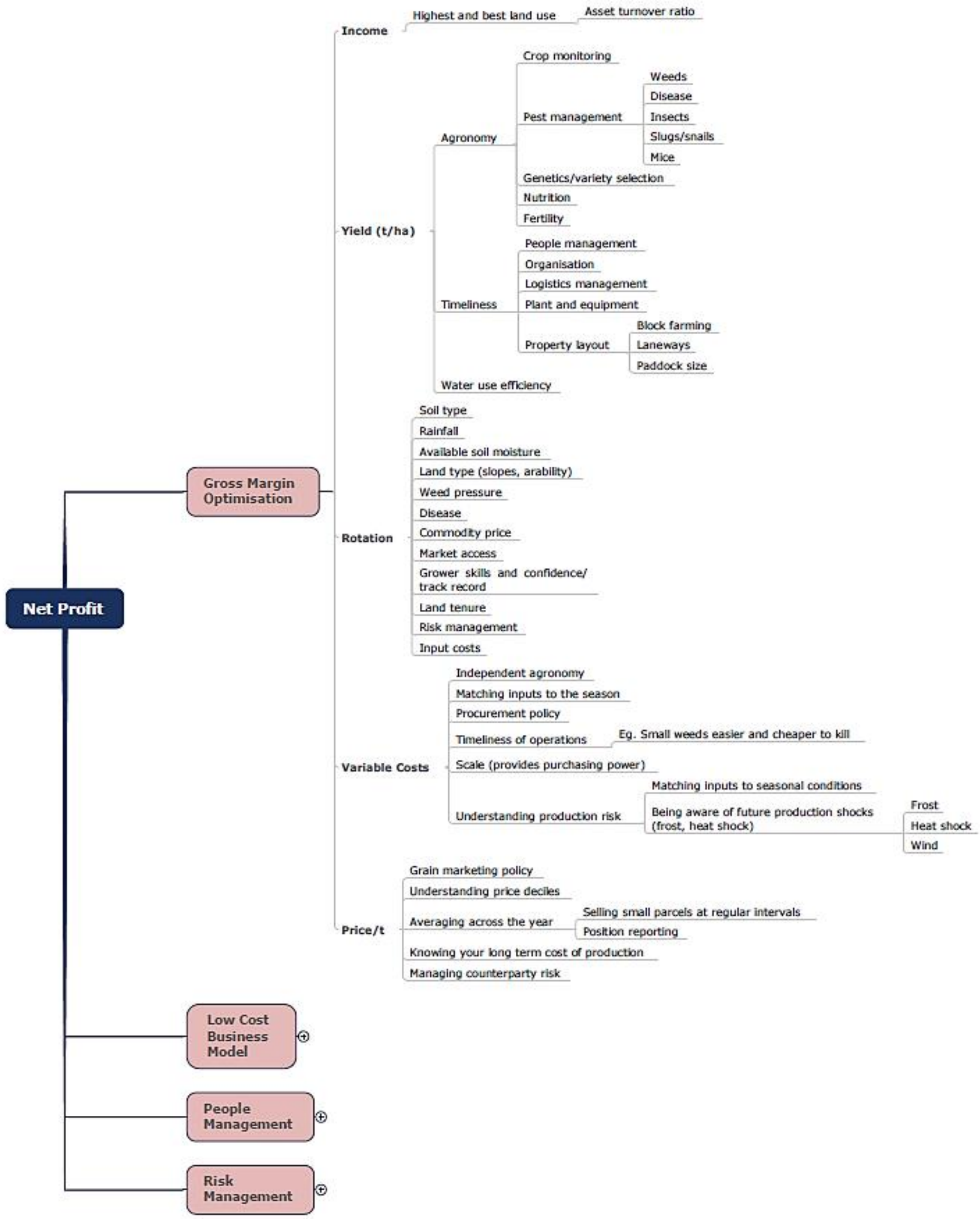
iii. People and Management

iv. Risk Management

Within these four primary profit drivers, there are a number of secondary and tertiary profit drivers that influence them. By identifying, validating, and quantifying these secondary and tertiary profit drivers, we can understand which have the greatest influence on profitability per agro-ecological zone. Ultimately, this understanding can 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 Sandplain dataset	Average of Top 20% as selected by ORPA	Difference		Your Benchmarks
			+/-	%	
Hectares Owned	3,714	3,831	117	3.2%	
Total Effective Ha (owned + leased/sharefarmed)	5,075	4,581	-494	-10.8%	
Total Cropped Ha	4,209	4,440	231	5.5%	
Cropping % (of eff.Ha)	82.94%	97.17%	14.23%	17.2%	
Asset turnover ratio *income/total business assets	0.25	0.29	0.04	16.0%	
Income per eff.Ha	$660.04	$847.62	$187.58	28.4%	
Complete rotation ($/Ha/mm AR) a. Income as $/eff.Ha/mm AR b. Income as $/eff.Ha/Eff.mm	 $1.51 $2.79	 $1.71 $3.11	 $0.20 $0.32	 13.2% 11.5%	
WUE Wheat (kg/ha/eff.mm)	11.95	12.50	0.55	4.6%	
Price received Wheat ($/t)	$281	$293	$12	4.3%	
Yield Wheat (t/ha)	2.67	3.08	0.41	15.4%	
Variable Costs $/Crop Ha	$380.66	$433.06	$52.40	13.8%	
Variable Costs as % income *includes, contract work, crop selling and storage, crop insurance, fertiliser, freight, fuel, ameliorants, machinery R&M, seed & seed cleaning, chemicals	57.67%	51.09%	-6.58%	-12.9%	
Fertiliser $ per cropped ha	$113	$134	$21	18.6%	
Pesticide $ per cropped ha	$76	$93	$17	22.4%	
Gross Margin per eff.Ha	$307.32	$413.05	$105.73	34.4%	
Gross Margin ($/Ha/mm AR) a. Op. GM as $/eff.Ha/mm AR b. Op. GM as $/eff.Ha/eff.mm	 $0.70 $1.29	 $0.84 $1.53	 $0.14 $0.24	 20.0% 18.6%	

Table 2: WA Sandplain Gross Margin Optimisation benchmarks.

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

- Are generating 28% more income per effective hectare than the average.
  - As a result, are making 11.5% more income per effective hectare, per effective mm rainfall ($/eff.Ha/eff.mm) than the average business
- Have 4.6% better water use efficiency on wheat.
- Expend $52 more per hectare (or 14%) on variable costs than the average.
  - Theoretically supporting the 15% higher yield average.
- Are investing 51.09% of turnover into variable costs compared to the average 57.67%.
  - Therefore are 13% more efficient with variable costs as a % of

income, resulting in an additional 6.5% of income potentially being retained as net profit before tax

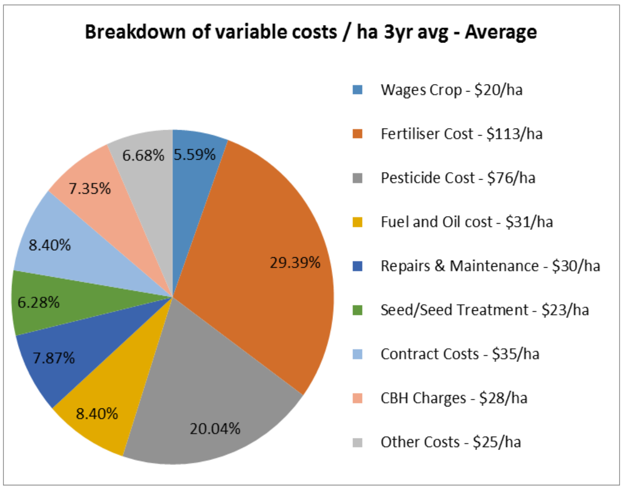
- Are generating a 34% greater gross margin per effective hectare than the average ($413.05 to $307.32 respectively)
  - When analysed further, are achieving a 19% greater gross margin per effective hectare, per effective mm rainfall ($/eff.Ha/eff.mm) than the average business
  - Attributed to greater efficiencies in variable cost control, and water use efficiency and yield 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;

- Are spending 19% <u>more</u> on fertiliser than the average business
  - Equivalent to $21 per cropped hectare
- Are spending 22% <u>more</u> on pesticides (or $17/cropped hectare) than the average business
- The Top 20% of the WA Sandplain dataset receives a higher annual rainfall than the average business; hence are leveraging expenditure to achieve a greater yield and income
- Are expending 22% <u>more</u> on contractor costs than the average
  - It appears the Top 20% are more willing to employ contractors to fill machinery/staff/timeliness gaps



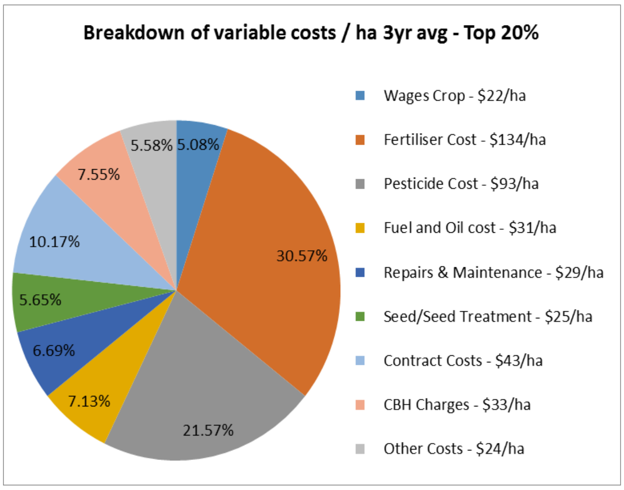
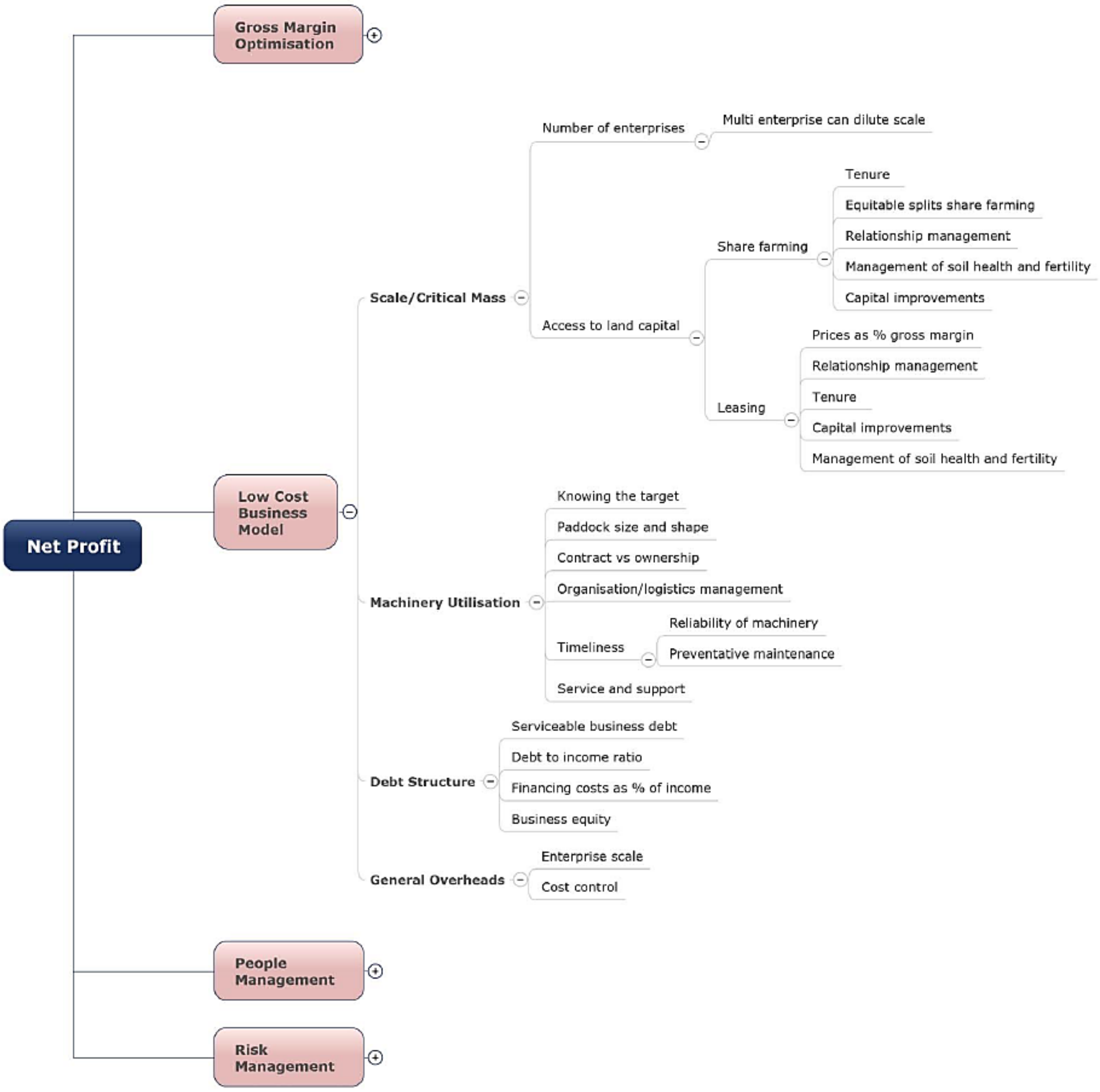


Chart 1: Breakdown of Variable Costs in the WA Sandplain zone.

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.

Benchmark	Average across WA Sandplain dataset	Average of Top 20% as selected by ORPA	Difference +/-	Difference %	Your Benchmarks
Total Plant Machinery Labour (TPML)					
a. TPML as a % income	28.13%	24.62%	-3.51%	-14.3%	
b. TPML $/eff.Ha	$185.70	$208.72	$23.02	12.4%	
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)					
Machinery investment to income ratio	0.69	0.61	-0.08	-13.1%	
Area leased/sharefarmed %	22.15%	13.40%	-8.75%	-65.3%	
Land lease as a % gross margin	15.73%	10.41%	-5.32%	-51.1%	
Land Lease $/Ha	$93	$86	-$7	-8.1%	
Equity %	77.39%	83.83%	6.44%	8.3%	
Debt to Income ratio	0.79	0.54	-0.25	-46.3%	
a. Finance costs as a % income	6.48%	3.78%	-2.70%	-71.4%	
b. Land lease costs as a % income	3.51%	1.35 %	-2.16%	-160.0%	
c. Combined costs as a % income	9.99%	5.13%	-4.86%	-94.7%	
EBIT ($/Ha/mm AR)					
a. EBIT as $/eff.Ha/mm AR	$0.47	$0.58	$0.11	23.4%	
b. EBIT as $/eff.Ha/eff.mm	$0.86	$1.06	$0.20	23.3%	
Net Profit ($/Ha/mm AR)					
a. Net Profit as $/eff.Ha/mm AR	$0.39	$0.52	$0.13	33.3%	
b. Net Profit as $/eff.Ha/eff.mm	$0.70	$0.96	$0.26	37.1%	

Table 3: WA Sandplain Low Cost Business benchmarks.

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

- Are more efficient with machinery and labour use (14.3%), as measured by TPML as a % of income.
  - This potentially allows an additional 3.51% of turnover to be retained as net profit before tax.
- Have a machinery investment to income ratio of 0.61:1.00, 13% lower than the average at 0.69:1.00.
  - This indicates that for every $1 million of turnover, the Top 20% of businesses are employing $610,000 of machinery ($80,000 less than the average)
- Are leasing/sharefarming a lower percentage of farmed land (13% of land base managed) compared to the average (22% of land base managed). However the Top 20% are accessing lease land 51% more cost effectively when lease price is considered as a % of gross margin. The average business in the zone is paying 15.7% of gross margin to lease land, whereas the Top 20% of businesses are paying closer to 10% of gross margin.
  - As an absolute $/Ha figure, the Top 20% are paying 8% less to lease this land; $86/Ha compared to $93/Ha. Location and astute decision making influence this.
- Have finance and lease costs of 5.13% of income compared to 9.99% of income for the average business.
  - Attributed to large differences in both land lease and finance costs.
- Have a debt to income ratio of 0.54:1.00 rather than 0.79:1.00.
  - This indicates a higher level of debt serviceability amongst the Top 20% by ORPA. Although, both debt to income ratios are solid, and manageable

TPML breakdown

It is interesting to compare the TPML cost components of the Top 20% of businesses with the average business. There is a significant increase in TPML expenditure per Ha between the Top 20% and the average businesses in this zone, however the Top 20% appear able to spread this over more area managed, and also appear to be generating higher income and/or gross margins from lease land; to result a better TPML as a % of income.

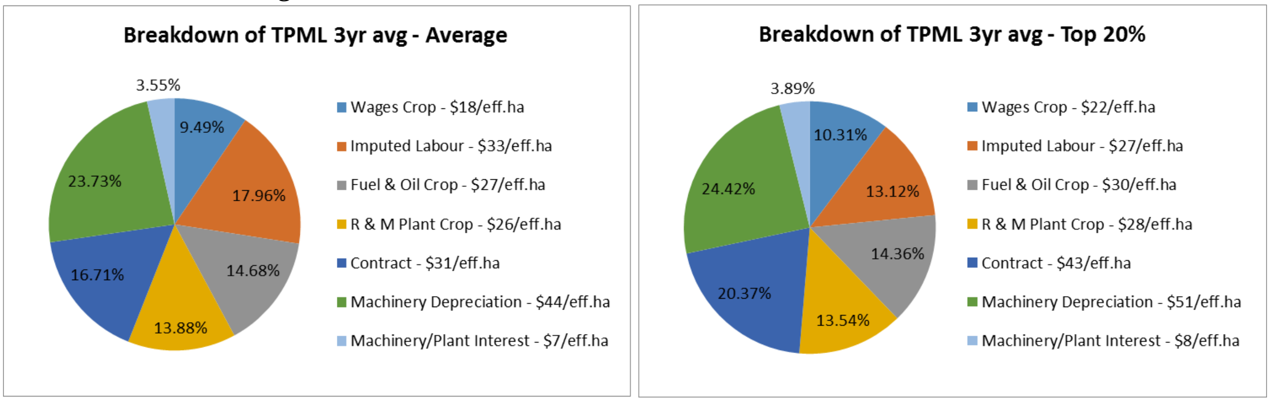
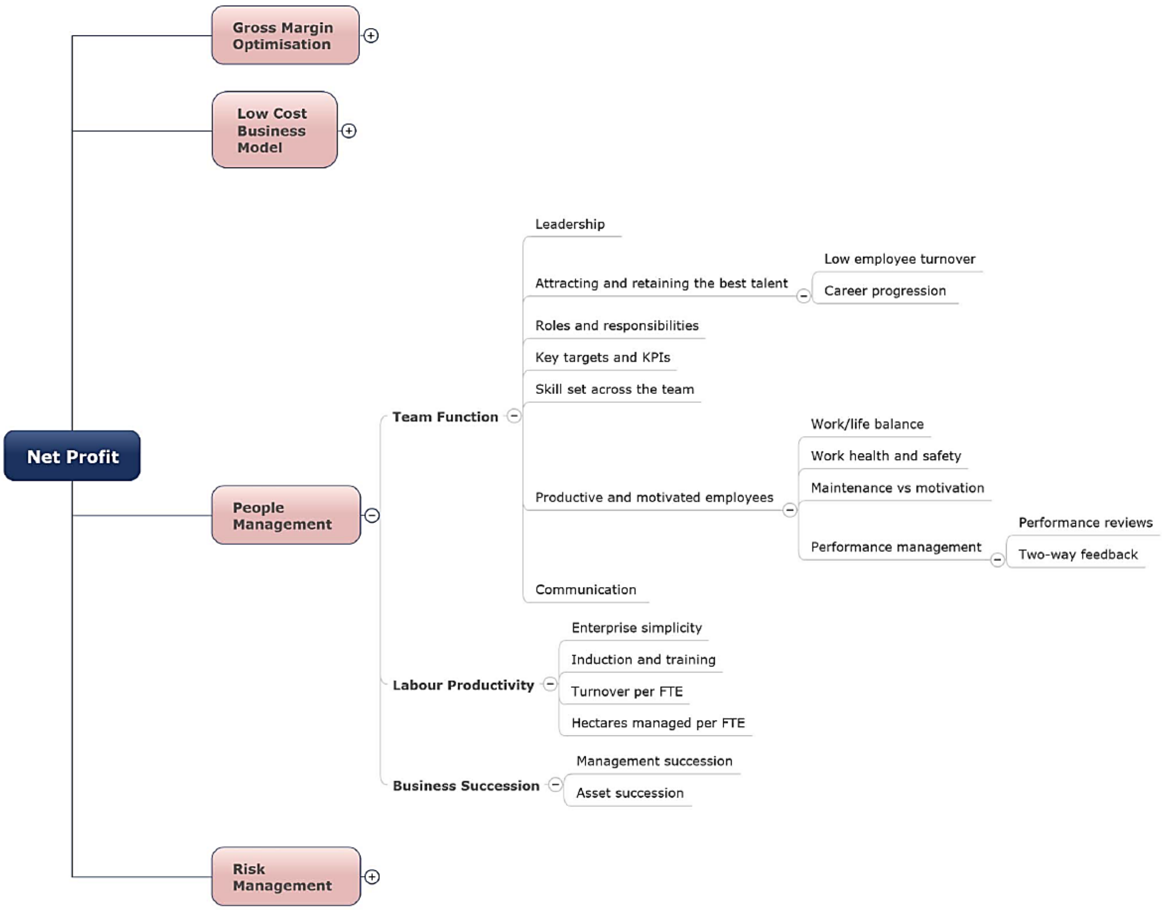


Chart 2: Breakdown of TPML Costs in the WA Sandplain zone.

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 set 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 Sandplain dataset	Average of Top 20% as selected by ORPA	Difference		Your Benchmarks
			+/-	%	
Turnover per FTE	$1,128,292	$1,441,464	$313,172	27.8%	
Ha managed per FTE	1705	1730	25	1.5%	
Turnover per FTE per Ha	$662	$833	$171	25.8%	

Table 4: WA Sandplain People and Management benchmarks.

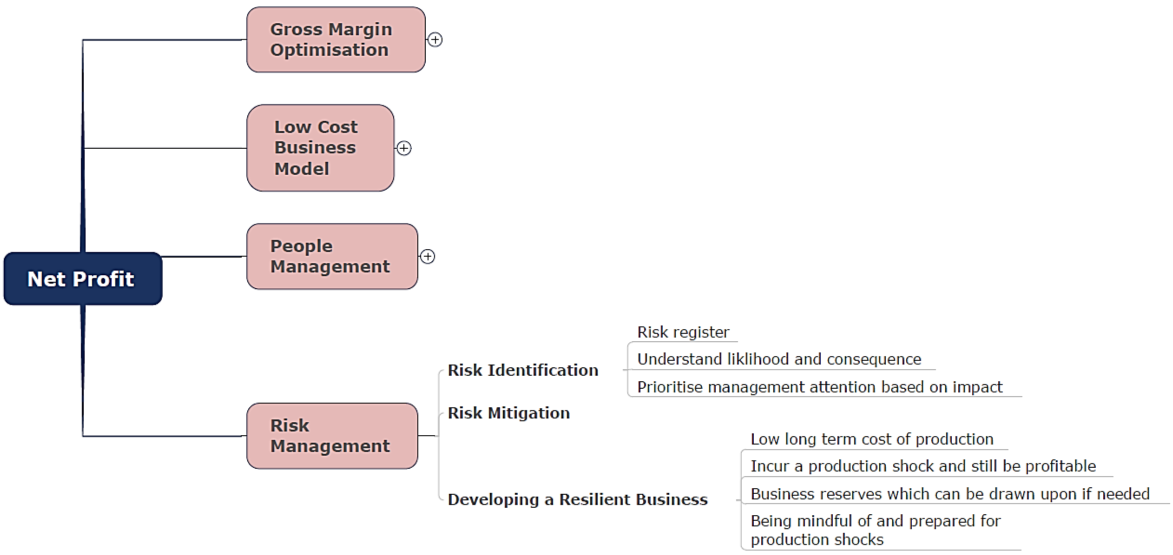
In WA Sandplain, the Top 20% of businesses by ORPA;

- Are generating over $313,000 or 28% more turnover per FTE. Importantly, they are achieving this additional productivity with only 1.5% more area managed per FTE.
  - Analysed further, this equates to a 26% higher turnover per FTE per hectare
- The increase in turnover per FTE appears to be generally achieved via a combination of greater WUE, a higher yield, and superior price received per tonne, along with superior enterprise scale (5.5% more cropped area managed)
  - 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.

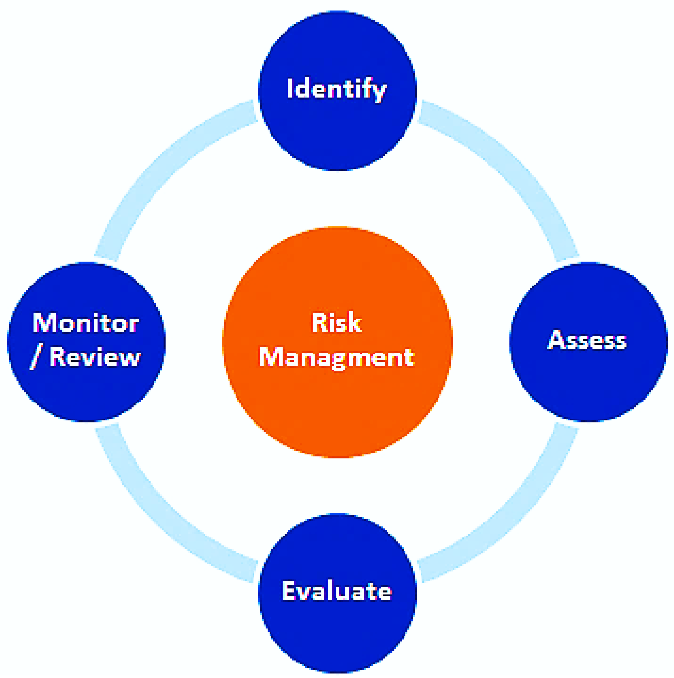
Planning	Deciding what needs to happen in the future and generating plans for actions	• Operation preparation • Enterprise plan • Early is key
Organising	Making sure the human and nonhuman resources are put into place	• Is everything ready? • Is everyone informed? • Set targets? Stop:Go point
Coordinating	Creating a structure through which the farm businesses objectives can be accomplished	• 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	• Assign the right person • Outline task clearly • Time management
Controlling	Checking progress against plans	• 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 Sandplain 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

Profit Driver	Stretch target	Your Benchmarks
Variable costs as a % of Income (%)	45 50 55 60 65	
TPML as a % of Income (%)	22.5 25.0 27.5 30.0 32.5	
WUE Wheat (kg/ha/eff.mm)	10 11 12 13 14	
Machinery Investment to Income ratio	0.5 0.6 0.7 0.8 0.9	
Turnover per Ha per FTE ($)	500 600 700 800 900	
Asset turnover ratio	0.15 0.20 0.25 0.30 0.35	
Land lease as a % of Gross Margin (%)	10 12 14 16 18	
Profit as a % of income (%)	15 20 22.5 25 30	

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

Fertiliser $ per cropped ha ($)	100 110 120 130 140	
Pesticide $ per cropped ha ($)	60 70 80 90 100	

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 and 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
- Understands the importance of monitoring crop growth and development stage
  - Allows timely nutritional applications
  - 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
  - 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 post-emergent 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. 4,000ha and assume wheat), this equates to;

2,000ha x 20 kg/ha/day = 40,000 kg / day

x 7 days = 280,000 kg (280 tonne) lower yield potential

@ $281/t (average price received)

= $78,500 loss (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. This 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. 4,000ha and assuming wheat, the following may apply;

400ha x 0.5t/ha = 200t lower yield potential

@ $281/t (average price received)

= $56,800 loss (minimum) due to poor weed control

Or

$141 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. 4000ha, this equates to;

4,000ha x $25 per hectare = a potential of $100,000 <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. 4000 hectares and assuming wheat is;

4,000ha x 10% yield benefit (0.27t/ha [10% of average yield in this zone]) = 1080t

@ $281/t (average price received)

= $303,000 <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____________________
(Includes both on-farm & off-farm assets. Does not include value of lease land)

=_____________________________

Variable Costs as a % of Income

VC = crop costs: wages, fuel & oil, repairs & maintenance, contract costs, fertiliser, pesticides, seed/seed treatment, CBH charges

=Variable Costs____________________ ______ ÷ Farm Income____________________________

=_________________________________

Low Cost Business

Total Plant Machinery & Labour (TPML) as a % of Income

TPML = crop costs: wages, fuel & oil, repairs & maintenance, contract costs, machinery and plant interest, and permanent labour units*$70,000

= TPML________________________ ÷ Farm Income________________________

=____________________________

Machinery Investment to Income Ratio

= Value of Plant & Machinery________________ ÷ Gross Farm Revenue________________

→ a ratio of 0.5 indicates that for every $1m of revenue,
The Grower is employing $500,000 of machinery

=________________

Land Lease as a % of Gross Margin

= Land lease $/ha________________ ÷ Operating gross margin/eff.ha________________

=________________________

People and Management

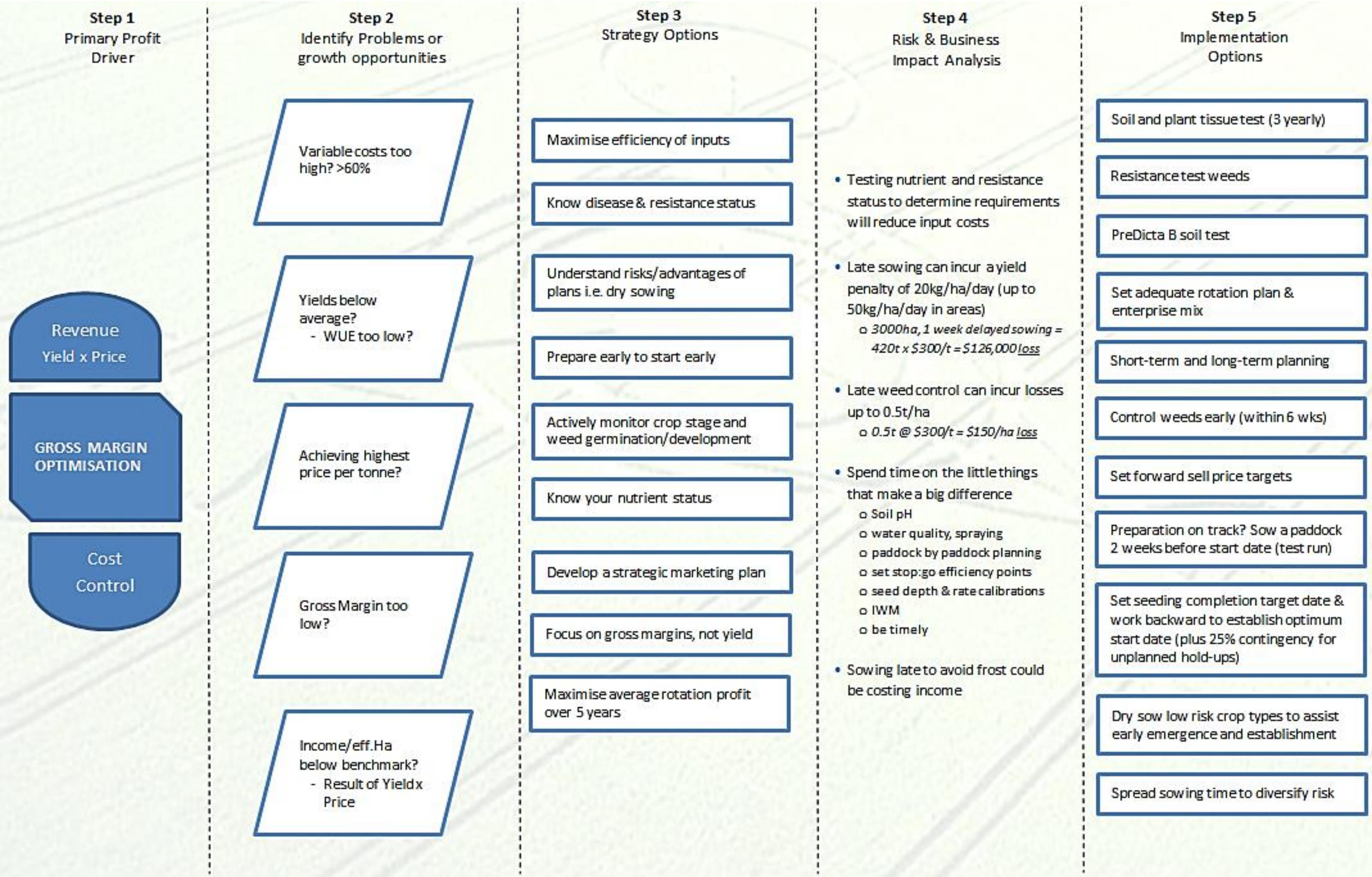
Turnover per Ha per Full Time Equivalent (FTE)

FTE = Full Time Equivalent

=Farm turnover (income) ________________ ÷ Full time labour units________________

=____________________, ÷ eff.ha ______________ =________________

Flowchart Diagnostics



Flowchart Diagnostics

LOW COST BUSINESS MODEL

Step 1
Primary Profit Driver

- LOW COST BUSINESS MODEL

Step 2
Identify Problems or growth opportunities

- Is your Total Plant Machinery & Labour as % of income too high?
- Is your machinery investment to income ratio too high?
- Is your land lease as a % of income too high? - vs Interest
- Is your Operational Return on Production Assets below average?
- Is your profit as % of income at benchmark?

Step 3
Strategy Options

- Do the numbers
  -over-capitalised or under-capitalised can both be inefficient
- Be sure of machinery purchases
  -do you need the enterprise specific machine?
  -is it more cost-effective to use a contractor?
  -how will it impact on key ratios?
- Utilise and maximise permanent labour unit efficiency
- Be aware of opportunities to lease or buy land
  -ensure the numbers work
  -negotiate price & non-price factors
- Identify the margin between your costs per tonne and the likely price range
- Look to reduce the burden of fixed costs on the business

Step 4
Risk & Business Impact Analysis

- Scale doesn't necessarily increase profit, but can have benefits
- Match machinery investment to scale
- Leasing land will increase scale 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
  - will it improve efficiencies & accuracy
  - can it wait until extra cash is potentially available
  - breakdowns do cost time and money

Step 5
Implementation Options

- Calculate your machinery cost/ha for all major machines
- Do the figures on enterprise requirement, and machinery efficiency
- Calculate cost of contractors and compare to ownership
- If employing permanent labour, look to employ someone with multiple skills
- Actively seek lease land with the best margin. It's not about the cost $/ha
- Don't pay any more than 50% of the potential profit margin on a lease
- Evaluate your needs, and remove unnecessary costs
- Shop around for services that offer a better price i.e. accountancy
- Small savings will increase profit

Flowchart Diagnostics

Step 1
Primary Profit Driver

PEOPLE AND MANAGEMENT

Step 2
Identify Problems or growth opportunities

- Is your turnover per Full Time Equivalent below average?
- Have you adopted technology to improve efficiencies?
- Do you have appropriate people management processes in place?
- Do you find it difficult to find and retain qualified labour?
- Do you have a succession plan in place?

Step 3
Strategy Options

- Look to refine production system. Simple = greater labour productivity
- Regular PD for manager and staff
- Look to become more of a logistical manager rather than an operational manager if possible
- Take the time to understand Safety and OHS requirements
- All insurances in place i.e. Death & TPD
- Training to prevent operator errors
- Refine employment techniques -spend $ on employment agencies
- Develop a succession plan so everyone knows their place within the business

Step 4
Risk & Business Impact Analysis

- Good staff that are looked after will increase efficiency and turnover
- Technology will increase time efficiencies
- Technology will reduce fatigue for all staff
- A well-managed and informed worker will perform well
- A good relationship between the manager and employee/s will have positive outcomes
- Safety is a key responsibility of the property owner

Step 5
Implementation Options

- Clearly discuss daily plans with all involved
- Use technology to simplify tasks and monitoring i.e. synced phones/tablets
- Ensure training on all machines is undertaken
- Seek advice on insurances for both permanent and casual labour. This will also avoid business risk.
- Develop Standard Operating Procedures (SOP's) to assist with training, induction, or absence
- Attend targeted field days, workshops
- Sit down with a succession planner as soon as possible

Flowchart Diagnostics

Step 1 Primary Profit Driver

- RISK MANAGEMENT

Step 2 Identify Problems or growth opportunities

- Is your equity too low? <75%
- Do you actively identify and assess price and operational risks?
- Do you actively identify and assess business risks?
- Have you implemented cost control measures?
- Is your seasonal plan flexible?
- Do you use Decision Support Tools (DST's)

Step 3 Strategy Options

- Manage your equity
- Develop a disciplined marketing plan
- Be prepared for downtime i.e. breakdowns, inputs run out etc
- Manage business risk -marketing, finance, tax
- Identify and rank the risks to your business
- Bulk purchase of consumables
- Be prepared for seasonal shocks
- Target inputs to season. Have a flexible plan. Use Yield Prophet
- Use DST's i.e. CliMate, Yield Prophet, NuLogic, Flower Power

Step 4 Risk & Business Impact Analysis

- Build resilience and put aside money to safe-guard from production shocks; if possible
- Matching inputs to season
- A 10% drop in fertiliser expenditure per crop ha, equates to a $9/ha increase in GM (or 3% to GM)
    - Which = approx. $27,000 benefit to the average farm
- Know the breakeven price of expected yield when marketing grain
- Equity affects funding. So if equity is too low, debt reduction strategies are essential

Step 5 Implementation Options

- Set debt reduction targets
    - Minimise capital expenditure until target reached
- Organise alternative funding if required
- Engage professionals to minimise price and business risk
- Be prepared early to minimise downtime at critical periods
- Monitor inputs on hand to calibrate usage, and to avoid shortages & wastage
- Re-visit input requirements and store on-hand for next year if needed
- In seasons with additional funds bulk purchase inputs, fuel, parts; if reasonable
- Assess risks of changes to plan, and evaluate cost-effectiveness of alternative options
- Use DST's i.e. CliMate, Yield Prophet, NuLogic, Flower Power

NOTES

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