MEAT & LIVESTOCK AUSTRALIA

Profitable integration of cropping and livestock management guideline

Northern Victoria

Contents

Foreword

This management guideline has been designed for mixed enterprise (cropping and livestock) producers as part of the Meat & Livestock Australia (MLA) project 'The profitable integration of cropping and livestock in southern Australia'.

The purpose of this resource is to support the half-day workshops that will be delivered to producers during the extension phase of this project.

It identifies the key profit drivers by agro-ecological zone and provides some principles and indicators that producers can implement in their businesses to enhance profitability.

The key management-affected profit drivers have been identified through the collection of 100 multi-year benchmarking datasets from mixed enterprise businesses in southern Australia (production years 2014–2016).

These benchmarking datasets have been analysed to identify the key profit drivers by agro-ecological zone. This was complemented by a qualitative survey process with producers in each region.

It was valuable for the project to be driven from the agro-ecological zone level to ensure regionally specific insights and data. There are different environmental and enterprise characteristics that are unique to each agro-ecological zone and the applied project methodology allowed 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 remaining 80% businesses in each agro-ecological zone. There is abundant opportunity for many mixed enterprise producers to increase profit from the resource base that they currently have available to them.

Acknowledgement

This project and management guideline have been made possible through a targeted MLA investment into the profitable integration of cropping and livestock.

It is being delivered across the major cropping agro-ecological zones in southern Australia through the collaborative partnership with Rural Directions Pty Ltd in consultation with RMCG, Farmanco Management Consultants, and Macquarie Franklin Pty Ltd.

This project builds upon a significant historic investment by the Grains Research and Development Corporation (GRDC) in the project titled 'The integration of technical data and profit drivers for more informed decisions'. This GRDC investment identified the key profit drivers in cropping focused businesses across Australia and forms the basis upon which the profit driver framework for this management guideline was developed. GRDC supports the opportunity to deliver outcomes for mixed farming enterprises through the leverage of outcomes from The integration of technical data and profit drivers for more informed decisions and other relevant GRDC investments.

Disclaimer

Seasonal influence: The data collected and analysed in this management guideline booklet was collected for the three-year period between 2014 and 2016. The seasonal conditions experienced over these years will have influenced the results achieved in each agro-ecological zone. If seasonal and market 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 correct interpretation of the data presented.

MLA: Any recommendations, suggestions or opinions contained in this publication do not necessarily represent the policy or views of the Meat & Livestock Australia (MLA). No person should act on the basis of the contents of this publication without first obtaining specific, independent professional advice.

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Executive summary

The top 20% of farm businesses in this survey are outperforming the remaining 80% by more than 50%. How are they doing it? What might you need to do to achieve it too? This is what this management guideline is about.

What stands out is that profitable mixed farming businesses seek synergy[1], not conflict, between their cropping and livestock enterprises. They do this by:

1. Implementing the key profit drivers for **both** cropping and livestock enterprises
2. Eliminating enterprise conflict.

This management guideline identifies the key profit drivers for both cropping and livestock enterprises. However, it is the ability to integrate multiple enterprises and create synergies between them that ultimately drives profitability in a mixed farming business. Creating synergies may sound straightforward and the theory is not new but, implementing the theory practically and consistently is often much more difficult.

Effective integration is about optimising the win-win scenarios and minimising the impact of unavoidable win-lose scenarios on the performance of the whole business. Minimising the impact of win-lose scenarios requires prioritising or protecting the choice that will preserve the most profit margin for the business as a whole.

Whole-of-business profitability and performance is the best indicator of how successfully a mixed farming business is integrating cropping and livestock enterprises. This management guideline demonstrates that there is a significant gap in financial performance between the top 20% of producers and the remaining 80% of farming businesses.

The profit drivers have been identified through the collection of 100 multi-year benchmarking datasets from mixed enterprise businesses in southern Australia. The data was collected for the three-year period between 2014 and 2016. The seasonal and market conditions experienced over these three years will have had an influence on the results achieved in each agro-ecological zone.

The authors acknowledge that some of the comparisons within and between the zones and regions may change as a result of seasonal and market conditions. However, this management guideline was built upon the GRDC project 'The integration of technical data and profit drivers for more informed decisions', which found the same profit drivers held true. This forms an eight-year data analysis and further supports the outcomes communicated in this document. The core principles introduced are timeless and are supported by long run data.

While there are a large number of profit drivers in each of a cropping or livestock enterprise, the superior profitability achieved by the top 20% of mixed farming businesses is a function of the following four primary profit drivers:

1. Gross margin optimisation
2. Low cost business model
3. People and management
4. Risk management.

We refer to this as the profit driver framework.

Whole-of-business performance will be compromised at some point in time without appropriate attention and consideration to all four of these primary profit drivers. This management guideline is structured to provide content and insights on all four components of this profit driver framework.

1 Synergy between two things (in this case, cropping and livestock enterprises) means to create an effect greater than the sum of the individual effects.

1. Gross margin optimisation

The gross margin optimisation profit driver is influenced by income generation and disciplined variable cost control. The three key principles to optimising gross margin within a mixed farming (cropping and livestock) business are:

- target superior gross margin performance in both the cropping and livestock enterprises
- aim to optimise crop yield and livestock income in a cost-effective way
- disciplined and balanced approach to variable cost inputs.

The survey results for northern Victoria show that the top 20% achieve cropping gross margins 134% (or $143/ha) higher than the remaining 80% because of more cost-effective income generation. That is, they achieve higher income ($235/ha or 76%) from higher water use efficiency, but they only required slightly higher variable costs ($93/ha or 46%) to achieve it. The remaining 80% spend less on all categories of variable costs, but the percentage split between the different cost items is similar to the top 20%. Thus, cost-effective cropping is not so much what you spend, but how you spend it.

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Similarly, cost-effective income generation is a key driver of livestock profitability for the top 20% businesses. They achieve gross margins 42% (or $11/DSE) greater than the remaining 80% of businesses by spending the same amount on variable costs, but earning more income from that expenditure.

Cost-effective income generation is a key driver of livestock profitability for the top 20% businesses.

2. Low cost business model

The low cost business model profit driver is influenced by a farm's structural efficiency. This efficiency is related to the business's overhead cost structure. These are unique to each business and business structure.

The two largest overhead costs in a mixed farming business are the costs of owning machinery (depreciation and interest) and employing labour (whether family or non-family). Thus, how these overhead costs are utilised has a big influence on profitability.

The three key principles to achieving a low cost business model are:

- strive to develop simple and scalable farming systems
- avoid unnecessary complexity
- machinery and labour utilisation are significant profit drivers.

The survey results show that the top 20% of businesses in northern Victoria earned $77,012 (26%) in income/full-time equivalent person (FTE) more than the remaining 80%, despite the poor seasons experienced during the survey period. The most machinery efficient businesses achieved a total plant machinery and labour (TPML) benchmark of 39%.

Thus, the top 20% of businesses in this survey in northern Victoria are achieving labour and machinery productivity substantially better than the remaining 80%, despite the poor seasons achieved. As a result, they have lower cost business models, which are a key profit driver of their businesses. Their performance indicates that they have the potential to achieve long-term average TPML of 30% and income/FTE of $600,000, as the top 20% have achieved in other regions where the survey was not skewed by two out of three poor seasons.

The top 20% of businesses in this survey in northern Victoria are achieving labour and machinery productivity substantially better than the remaining 80%, despite the poor seasons achieved.

3. People and management

The choices we make as a manager will have a significant influence on the profit outcome of our business.

Successful people management is a key profit driver for all businesses.

Three key principles to successful people management have been identified. These are as follows:

- strive for continual improvement in implementation
- have adaptable, well thought out operational plans
- seek to maximise team performance.

4. Risk management

Effective risk management is primarily about eliminating internal management risk. This includes simple scalable systems, effective processes and a positive mindset that helps drive consistent implementation under variable conditions.

Top 20% businesses are consistently generating stronger gross margins/ha from a common or lower cost base. They consistently invest less in total plant machinery and labour (TPML) related costs, as a result of achieving excellent levels of utilisation from machinery and labour.

At times the influence of internal management risk is overlooked, potentially because it can feel like a personal measure on our effectiveness and this can be confronting. Top 20% businesses tend to have a personal growth mindset. They are keen to know and understand where they can grow and improve over time. They are not afraid of taking full responsibility for the profit outcomes they achieve and to learn from their experiences.

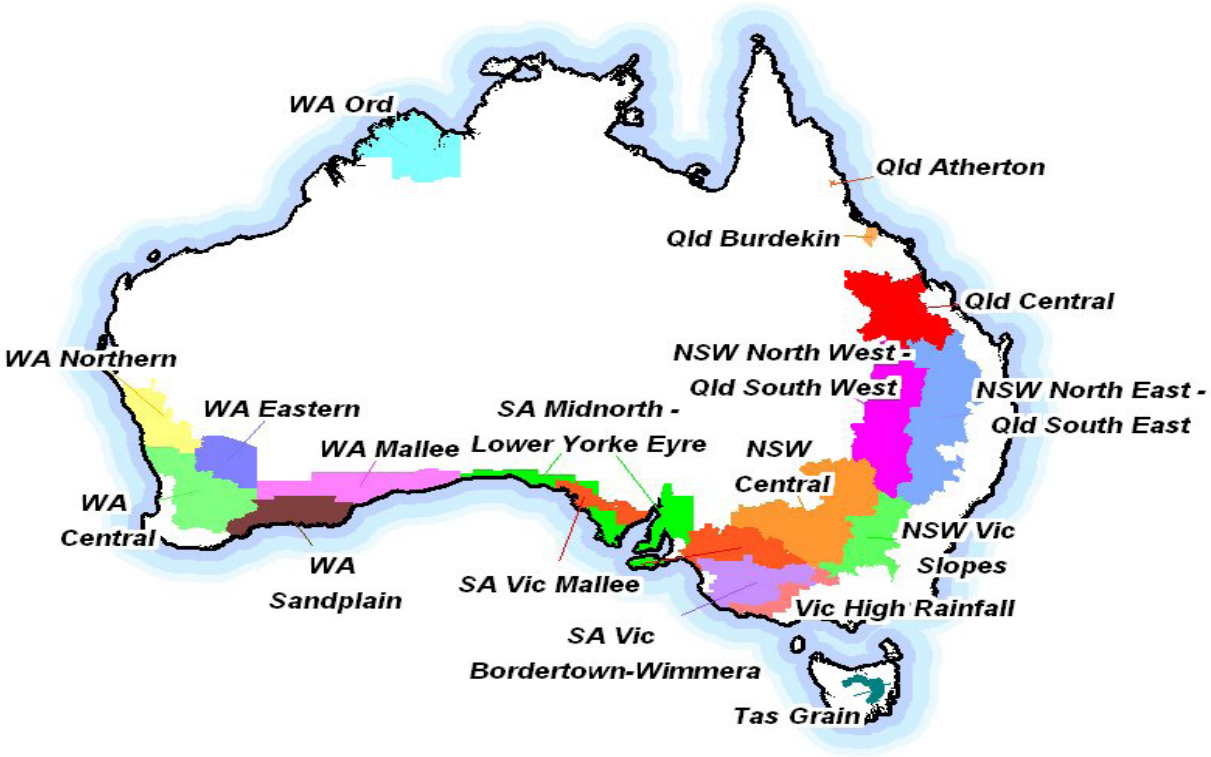
Three key principles that are relevant to risk management are as follows:

- recognise and believe that low risk, high margin agriculture is possible
- develop a resilient business model
- identify and mitigate key production and business risks.

1 Agro-ecological zone description

This zone is representative of the lower rainfall, warmer climate and lighter soils of the mixed farming regions of Northern Victoria. Commonly recognised as the country '*north of the divide*' and comprised of the north-east, north-central, Wimmera and Mallee regions of Victoria[2].

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



2 The regional data presented in this management guideline was collected from farm businesses spread across the north-central, Wimmera and southern Mallee regions, however the key profit drivers, principles and indicators are equally applicable to mixed farming businesses elsewhere in northern Victoria.

Table 1: Brief description of the Northern Victorian agro-ecological zone

Soil types	Varied and ranging from the self-mulching grey clays of the Wimmera, to the red duplex soils of north-central Victoria and the lighter sandy loans of the southern Mallee and west Wimmera
Rainfall	Long-term average = 300–450mm Survey average = 288mm* Survey growing season rainfall = 209mm
Farm size	Survey average = 3,650ha, with a 66%–34% split of crop and pasture
Land values	Survey average = $2,075/ha ($830/ac) with a range of $1,300–$2,800/ha ($520–$1,120/ac)
Enterprises	Broadacre cropping – cereals, pulses and oilseeds Livestock – lamb, wool and beef production Average crop intensity of 66%, with a range of 50%–90%
Yields	Survey average for wheat = 1.5t/ha, with a range of 0.7–3.0t/ha
Stocking rates	Survey average = 3.5 DSE/ha with a range of 2.5–5 DSE/ha

*The region experienced two consecutive seasons of well-below average annual rainfall (i.e. ~55-65% of long-term average) in FY15 and FY16.

2 Comparing like with like

2.1 Benchmarking is a diagnostic tool

A doctor might take a blood sample and benchmark the results against accepted or 'healthy' indicators to help diagnose what ails you, or might ail you in the future. Similarly, business benchmarks can be used to identify strengths and weaknesses in your business, so that you can identify any present or potential future 'ailments' in your business.

Importantly, benchmarks do not tell you what to do to fix any potential problems. They just give you a target that you might like to aim for. Identifying the right action to take to improve your business requires careful consideration of the likely extra income, extra costs and risks of changing (*or not changing*). Will you be better off, all things considered?

2.2 Benchmarking is not a competition

Business benchmarks are usually presented (as they are within this management guideline*)* as a comparison of the top 20% compared to the rest, or average. This is not meant to be comparative analysis, a race for the premiership, or a value judgement of who is and is not a 'good producer', it simply shows what is possible.

You should be considering what you want to achieve within your farm business. If you are not achieving it, then this diagnostic tool might help you identify why not and what you might like to aim for.

2.3 Seasonal impact

How often have you heard comments about benchmarking like, 'it's not a fair comparison', 'it's only three years', 'but we had two poor years in a row', or 'I just bought the block next door'?

It's fair to say that all of these things and many more will have a significant impact on the numbers generated by any benchmarking analysis. The businesses sampled, their stage of business, the length of time analysed and the seasons chosen will all impact on the analysis. However, it's not a competition.

Well, northern Victoria had two '*shockers*' during the period surveyed – FY15 and FY16 received between 55%–65% of their long-term average annual rainfall. The result of this is that the benchmarks reported in this management guideline are all less than those received in other regions that did not experience the same run of seasons, however we can still learn from them, as this project and many other similar ones over a long period of time show that strong farm businesses always float to the top, regardless of the season or market conditions. This sample is no different.

The businesses in the top 20% averaged a return on assets managed (ROAM) of 3.9% over the three-year period analysed (2013-14 to 2015-16), compared to the remaining 80% of businesses who averaged 2.2%. Importantly, while returns varied from year to year, the top 20% businesses achieved returns (ROAM) between 1.5 and 2.5 times better than the remaining 80% in each and every year of the survey.

Table 2: ROAM[3] achieved each year by the top 20% businesses compared to the remaining 80%

	Average	FY14	FY15	FY16
Top 20%	3.9%	5.7%	3.6%	2.4%
Remaining 80%	2.2%	4.1%	1.3%	1.3%

3 ROAM = Return on assets managed

2.4 ROAM v ROE

ROAM stands for return on assets managed and is calculated as your operating profit (earnings before interest and tax, EBIT[4]), divided by the value of the total assets you manage (*not just what you own, but including a market value on that which you lease too*). Whilst ROE stands for return on equity, which is your net profit after interest and lease costs are deducted, divided by your net assets (*your total assets owned less your liabilities, or net worth*).

ROAM gives a measure of how well the assets under your management have performed (*the return*), whilst ROE gives a measure of the final return (*pre-tax*) you have received on your part of those assets (*your net worth or wealth*).

It is possible for two businesses to have the same ROAM, but totally different ROEs. This is because they might be managed equally successfully but, be financed differently. One might have very little long-term debt and/or lease country and thus, its ROE will be similar to its ROAM, but the other might have significant debt and/or lease country and thus, its ROE is significantly lower than its ROAM.

Table 3: The impact on ROAM and ROE of similar management but different financing

Indicator	Business A	Business B
Total assets	$10,000,000	$10,000,000
Total liabilities	$1,000,000	$4,000,000
Net worth	$9,000,000	$6,000,000
Operating profit (EBIT)	$500,000	$500,000
Interest & lease costs	$75,000	$300,000
Net profit before tax (EBT)	$425,000	$200,000
ROAM	5.0%	5.0%
ROE	4.7%	3.3%

There is no doubt that business A ends up with more money in the bank at the end of the year than business B, however they are both managed equally successfully, prior to their interest and lease costs.

Thus, we have chosen to focus our attention on ROAM because we wish to focus on management and what management targets might be needed to achieve higher returns. However, this does not discount the importance of debt and the impact your interest bill can have on your profitability. We discuss this later.

4 EBIT is a common term used in the accounts of public companies and stands for earnings before interest and tax, thus operating profit or EBIT is after all operating costs, but before your interest, lease costs and tax bills.

3 Successful integration

3.1 Principles

◆ Synergy not conflict

Profitable mixed farming businesses seek synergy[5], not conflict, between their cropping and livestock enterprises. They do this by:

- implementing the key profit drivers for both cropping and livestock enterprises
- eliminating enterprise conflict.

This management guideline identifies the key profit drivers for both cropping and livestock enterprises. However, it is the ability to integrate multiple enterprises and create synergies between them that ultimately drives profitability in a mixed farming business.

Creating synergies may sound straightforward and the theory is not new but, implementing the theory practically and consistently is often much more difficult.

There are a range of potential tensions between cropping and livestock enterprises in a mixed farming business. These tensions often relate to the timeliness of operations or competition for a common resource, including your own time and brain space. If these tensions are managed well, through careful consideration of how best to integrate the enterprises, robust profit outcomes are achievable.

There is always a risk, that despite good intentions, the tensions between cropping and livestock enterprises can result in outcomes which quietly erode the profit potential of one or more enterprises. Thus, it is essential in a mixed farming business to protect and preserve the profit margins of each enterprise. If not, it is likely that strong margins in one enterprise may potentially hide or even subsidise significant under performance in the other. This will compromise whole-of-business performance.

◆ Profit driver framework

While there are a large number of profit drivers in each of a cropping or livestock enterprise, the superior profitability achieved by the top 20% of mixed farming businesses is a function of the following four primary profit drivers.

1. Gross margin optimisation
2. Low cost business model
3. People and management
4. Risk management.

We refer to this as the profit driver framework.

Whole-of-business performance will be compromised at some point in time without appropriate attention and consideration to all four of these primary profit drivers. This management guideline is structured to provide content and insights on all four components of this profit driver framework.

5 Synergy between two things (in this case, cropping and livestock enterprises) means to create an effect greater than the sum of the individual effects.

◆ Key principles

Three key principles to strive for at the whole-of-business level to ensure the profitable integration of cropping and livestock in southern Australia are:

1. Aim to generate a consistent operating return that is stronger than your cost of capital.
2. Know and implement the key profit drivers in both your cropping and livestock enterprises.
3. Integrate cropping and livestock enterprises in a manner which eliminates enterprise conflict.

3.2 Generate a return stronger than your cost of capital

◆ Why?

It is pretty simple really. If you do not generate a return greater than your cost of capital, then you go backwards. A simple example would be borrowing money to buy the block next door. If the return on this investment is less than the interest cost of the borrowings, then you will have to use other funds to meet your interest commitments. Similarly, if you cannot generate a return from a lease block greater than the cost of leasing that block. Thus, your profit decreases, when the aim was to increase it.

In a worse case situation, you can go broke. That is, your financiers will want to foreclose if you cannot meet your commitments to them. At a personal level, you may want to think how best can you use your capital to generate you a return, i.e. can you get a better return elsewhere?

◆ What is your cost of capital?

If you have significant debt, it is pretty easy to work out your cost of capital. It has to be at least equal to the interest cost of that debt. Why 'at least'? Well surely you want to make a margin above your interest cost because of all the work you are doing, and don't forget risk.

If you are largely debt-free, then you might think 'cost of capital' is an irrelevant concept to you, but you can be assured others do see it as relevant and the top 20% certainly do.

Take for example the Australian Stock Exchange (ASX). The long-term returns from the ASX are greater than the average long-term bank interest rate. That tells us that equity investors have achieved and want greater returns than debt investors (banks, etc.). Why? Because they take more risk. Why should you be any different?

◆ Key indicators

The key indicators associated with this principle are:

- 6% Return on Equity (ROE)
- 6% Return on Assets Managed (ROAM)
- 30% of income retained as net profit
- >$600,000 income/FTE
- >80% equity (long-term).

The performance of the top 20% of businesses in this survey against these indicators are presented in section 3.5.

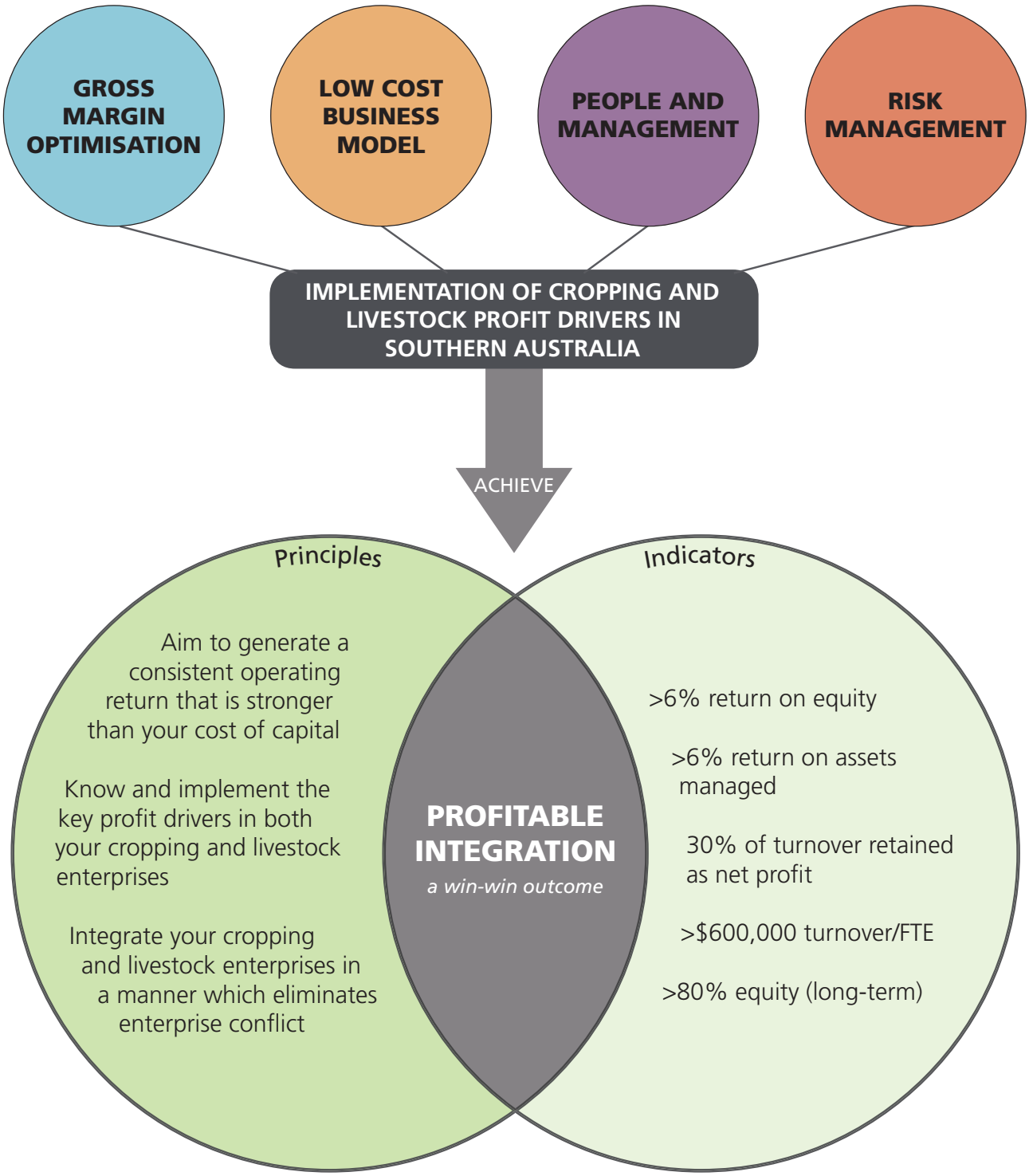
3.3 Know and implement the key profit drivers

The key primary profit drivers identified in the Profit Driver Framework apply equally to both cropping and livestock enterprises.

The secondary and tertiary profit drivers supporting these primary four are explored further in the corresponding sections of this management guideline. A key message is that all four profit drivers need to be addressed. If any components of the profit driver framework are overlooked, then whole-of-business performance will be compromised at some point.

The four primary profit drivers are represented in the diagram below which illustrates how successful integration will lead to an outcome of high profitability.

The top 20% focus on identifying where they will get the best return on energy invested. This is reflected as a strong focus on the things that they can influence and control rather than unnecessarily investing valuable energy into factors over which they have little or no control.


GROSS MARGIN OPTIMISATION
LOW COST BUSINESS MODEL
PEOPLE AND MANAGEMENT
RISK MANAGEMENT
IMPLEMENTATION OF CROPPING AND LIVESTOCK PROFIT DRIVERS IN SOUTHERN AUSTRALIA
ACHIEVE
Principles
Aim to generate a consistent operating return that is stronger than your cost of capital
Know and implement the key profit drivers in both your cropping and livestock enterprises
Integrate your cropping and livestock enterprises in a manner which eliminates enterprise conflict
PROFITABLE INTEGRATION
a win-win outcome
Indicators
>6% return on equity
>6% return on assets managed
30% of turnover retained as net profit
>$600,000 turnover/FTE
>80% equity (long-term)

3.4 Eliminates enterprise conflict

Successful businesses eliminate enterprise conflict as a first step to creating synergies from integrating cropping and livestock enterprises.

The primary reason often given for integrating cropping and livestock enterprises is to help manage commodity price risk, i.e. when grain prices are low, livestock prices are high and vice versa, and/or seasonal risk. Thus, many businesses use enterprise diversification as a risk management tool. However, over-complicating the enterprise structure can create new risks which negate the benefit from managing commodity price risk or seasonal risk.

The principle is to avoid any internal management risk that can be created through the process of diversification. The critical success factor in a mixed enterprise context is balancing up the tensions that exist between cropping and livestock enterprises.

There are three potential outcomes that can arise from managing these tensions when integrating cropping and livestock enterprises. They are:

- a win-win outcome from integration that results in a benefit or uplift to both enterprises
- a win-lose outcome where one enterprise gains, but at the expense of the other
- a lose-lose outcome where both enterprises are detrimentally affected.

Effective integration is about optimising the win-win scenarios and minimising the impact of unavoidable win-lose scenarios on the performance of the whole business. Minimising the impact of win-lose scenarios requires prioritising or protecting the choice that will preserve the most profit margin for the business as a whole.

The win-win, win-lose, and lose-lose framework is one of the more effective mechanisms to understand the potential areas for enterprise conflict that can arise between cropping and livestock enterprises. The following table captures a list of potential win-win, win-lose, and lose-lose scenarios that are possible and require careful management in a mixed enterprise business.

Win-win	Win-lose	Lose-lose
• Livestock offering the most profitable legume (or break crop) to the cropping rotation • A livestock phase in the cropping rotation increasing the robustness of the crop rotation against resistant ryegrass, while also being very profitable • Lamb finishing making very effective use of grain legume stubbles (can add $50-$100/ha to faba bean gross margins and assist with achieving heavier lamb turn-off weights into favourable market conditions) • The availability of legume stubbles enhancing a producer's ability to finish spring lamb in dryland production systems • Integration of lucerne and livestock. Lucerne can make productive use of summer rainfall and livestock also provide scope to make use of the lucerne stands outside of the demand on lucerne stands for hay and/or seed • Wheat/clover or cereal/clover systems. These systems can be simple but highly profitable and productive • Utilisation of cereal stubbles as a maintenance diet for breeding stock also assisting with stubble management and mice control • Using a pasture phase to build organic carbon/soil health (however it is a long journey in dryland systems).	• Grazing livestock on volunteer cereals or summer weeds (the cost to the cropping enterprise is too great in regard to moisture loss, disease build-up and nutrient removal. The preference is not to delay summer weed control at all... and certainly never past 15 March) • Shearing in April (the risk here is that April is a 'golden' month for cropping businesses in terms of seeding preparation and seeding, so best not to interfere with it. Being late with 10% of your seeding program can reduce total farm profit by up to 20%) • Large paddock size (great for cropping, more limited from a grazing management perspective) • The increased complexity of a more diversified business resulting in operational timeliness being compromised across one or more activities in the full calendar year • Delaying grass freeing a medic, clover, or vetch pasture (this may result in more available feed and dry matter for the livestock, but reduces the benefit uplift to the cropping rotation of the legume based pasture phase) • Cereal or grassy based pastures in the crop rotation (reduces the effectiveness of the pasture phase as a true 'break crop' in the rotation) • 'Grain and Graze' on cereal crops with ryegrass present (provides more optimal conditions for the ryegrass to flourish) • Grazing stock on paddocks to be windrow burnt (this can reduce the effectiveness of the windrow burning by up to 50% as a result of ryegrass seeds shaking to the ground from the stock interfering with the windrow).	• Sowing feed or fodder crops in late April, May, or June (late April is interfering with the 'golden' window for canola and other break crops, May is interfering with the 'golden' window for all crop types, and delaying the seeding of feed or fodder crops beyond any opening rain will also reduce overall dry matter production from the feed or fodder crop. Best to target sowing feed or fodder crops in late March as a golden rule) • Unnecessary complexity compromising clarity of thinking and overall mind set • Operational timeliness in both enterprises being compromised • Inability in the calendar year for effective recharge to be taken by team members and business owners. Holidays and short breaks are important to ensure that we are refreshed and operating at our best.

3.5 Whole-of-business performance

◆ Best indicator of success

Whole-of-business profitability and performance is the best indicator of how successfully a mixed farm business is integrating cropping and livestock enterprises. The following tables capture a summary of the whole farm performance of the top 20% (by ROAM) and the remaining 80% of the farm businesses in this survey.

◆ Statement of position[6]

The top 20% of farm businesses in this survey are substantial sized businesses with:

- greater than $10 million of assets or 4,300ha under management
- a net worth of greater than $9 million
- an equity of 91%.

The remaining 80% of businesses are smaller in scale (approximately 75%), but most notably, have almost double the amount of debt and an equity percentage of 76% compared to 91%.

Table 4: Statement of position for the top 20% compared with the remaining 80%

Item	Top 20%	Remaining 80%
Total assets managed	$11,140,327	$8,188,639
Hectares managed	4,297	3,702
Market value/ha	$2,727	$2,360
Total assets owned	$10,132,827	$7,560,494
Total liabilities	$959,448	$1,792,952
Net worth	$9,173,379	$5,767,542
Equity	91%	76%

◆ Statement of performance[7]

The difference in scale of business of the top 20% compared to the remaining 80% is also reflected in the statement of performance, with the top 20% of businesses having higher gross income, variable costs and gross margins than the remaining 80%.

However, it is significant that both groups have very similar overhead costs, depreciation and imputed labour, despite the difference in scale. This means the top 20% have greater economies of scale because the same level of overhead costs (including depreciation and imputed labour) are spread over more hectares, resulting in an operating profit (EBIT) that is almost five times greater than the remaining 80%, whilst the gross margin was only one and half times greater. This is a significant advantage.

Importantly, it would appear as though the top 20% are gaining much of their scale advantage from leasing land and machinery. This is demonstrated by them having greater interest and lease costs than the remaining 80%, despite their liabilities, as reported above, being lower.

6 Also referred to as balance sheet, or statement of assets and liabilities.
7 Also referred to as a profit and loss statement.

Table 5: Statement of performance for the top 20% compared with the remaining 80%

Item	Top 20%	Remaining 80%
Total income	$1,646,620	$1,155,044
Variable costs	$868,469	$628,043
Gross margin	$778,152	$527,001
Overhead costs	$218,095	$217,345
Depreciation	$106,517	$104,644
Imputed labour	$146,000	$141,750
Operating profit (EBIT)	$307,541	$63,262
Interest & lease costs	$200,148	$135,027
Net profit before tax (EBT)	$107,393	($71,765)

◆ Business performance benchmarks

The top 20% of farm businesses in this survey:

- generate a ROAM 75% greater than the remaining 80%
- generate an ROE double the remaining 80%
- retain 11% of their income as net profit before tax, compared to -11% for the remaining 80%
- generate 26% more income/FTE.

The top 20% of businesses in this survey have not met the benchmarks, set previously, for a business to generate a consistent operating return that is stronger than their cost of capital. This reflects the two very poor seasons experienced during this survey (two of three) and not their long-term average performance, which the benchmarks relate to. However, the results do demonstrate that the top 20% still manage to achieve better results against the key whole-of-business benchmarks than the remaining 80% even in such poor seasons.

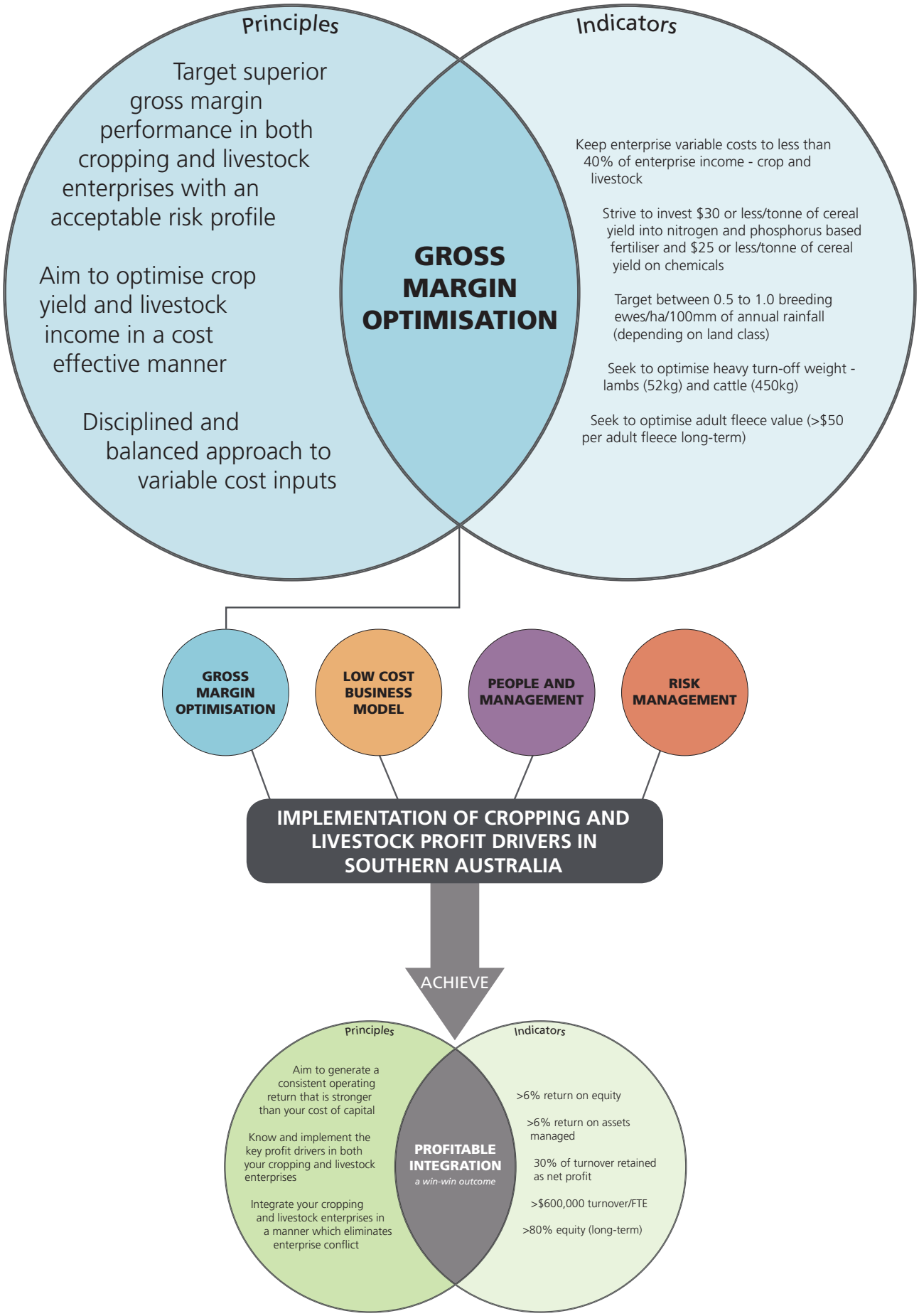
Table 6: Business performance benchmarks for southern Victoria

Benchmark	Top 20%	Remaining 80%	Range	
			Min	Max
ROAM	3.9%	2.2%	-0.3%	4.0%
ROE	1.5%	-1.8%	-5.2%	2.4%
Profit as % income*	11%	-11%	-27%	16%
Income/FTE	$367,962	$290,950	$198,654	$495,942
Equity**	82%	76%	41%	99%

* The TOP 20% for this benchmark are sorted by Return to Equity (ROE), as it is an overall profitability benchmark, rather than a management benchmark.

** The benchmarks presented for equity % are sourced from the National survey results to protect the privacy of the participating farm businesses at a regional level, and because of the large variation in equity and the small size of the regional sample.

4 Gross margin optimisation



4.1 Principles

Gross margin optimisation is a measure of operational efficiency. The three key principles to achieving gross margin optimisation are:

1. Target superior gross margin performance in both cropping and livestock enterprises.
2. Aim to optimise crop yield and livestock income in a cost-effective way.
3. Use a disciplined and balanced approach to variable cost inputs.

Thus, gross margin optimisation is not just about getting the highest yield or income you can, but about optimising income in a cost-effective way, i.e. making the most of how, when and where you use inputs to generate income.

4.2 Cropping

◆ Cropping variable costs

Your cropping gross margin is your gross income (yield x price) less your variable costs. In this context, variable costs refer to those costs that vary with production. They are not called variable because they might vary or change from year to year, but because their use varies or changes with production.

Cropping variable costs include:

- contract work
- crop selling and storage costs
- crop insurance
- fertiliser
- freight
- fuel (net of rebate)
- gypsum and lime
- hire of plant
- repairs and maintenance of machinery
- seed and seed cleaning costs
- sprays and chemicals.

◆ Gross margins

The cropping gross margins achieved by those surveyed in northern Victoria are shown in Table 7. The key insights from this table are:

- The top 20% achieved a cropping gross margin $143/ha (or 134%) greater than the remaining 80%.
- This was achieved as a result of higher income ($235/ha or 76%) that came from higher water use efficiency (2.7kg/ha/mm or 44%), but only required slightly higher variable costs ($93/ha or 46%) to achieve.

Table 7: Cropping gross margins and water use efficiency

Benchmark	Top 20%	Remaining 80%	Max/min*
Crop income/ha	$542	$307	$617
Crop variable costs/ha	$293	$200	$136
Crop gross margin/ha	$250	$107	$253
Wheat water use efficiency (kg/ha/mm)	8.8	6.1	11.2

* MAX/MIN refers to the maximum (for income measures) or minimum (for cost measures) achieved across the sample. It does not refer to any one farm business, but the "best" result for that indicator. Therefore, simply subtracting the cost items from the income items will not necessarily give you the same answer for the profit measures, i.e. they are not supposed to add-up.

The results also show that higher water use efficiency can lead to even higher gross income, however the variable costs shown in the table are the minimum spent across the survey, not the variable costs to achieve the maximum income of $617 shown in the table. In fact, the business with this income had a gross margin only $3/ha greater than the top 20%, because it spent $364/ha on variable costs to achieve it. This reinforces the message that gross margin optimisation is not just about getting the highest yield or income you can, but about optimising income in a cost-effective way.

◆ Cost-effective cropping

A summary of expenditure on cropping variable costs by those surveyed in northern Victoria is shown in Table 8.

Table 8: Summary of cropping variable costs

Benchmark	Top 20%	Remaining 80%	Difference
Plant and equipment operating costs	$112 (38%)	$74 (37%)	$39 (+1%)
Fertiliser	$72 (25%)	$45 (22%)	$27 (+2%)
Sprays and chemicals	$58 (20%)	$49 (25%)	$9 (-5%)
Other	$50 (17%)	$32 (16%)	$18 (+1%)
Total variable costs	$293 (100%)	$200 (100%)	$93 (0%)

The key insights from this table are:

- expenditure on plant and equipment operating costs (contract work, repairs and maintenance, fuel) makes-up a bit more than a third of cropping variable costs
- expenditure on fertiliser and chemicals makes-up a bit less than half of cropping variable costs
- the remaining 80% spend less on all categories of variable costs, but the percentage split between the different cost items is similar to the top 20%.

Thus, cost-effective cropping is not so much what you spend, but how you spend it.

The key benchmarks for cropping cost-effectiveness (see Table 9) focus on how much a business spends on variable costs as a percentage of income and how much is spent on fertiliser and chemicals/t of wheat yield. Expenditure on plant and equipment is discussed in more detail under low cost business model, as it includes a large proportion of overhead costs (e.g. depreciation) as well as the variable costs associated with operating the plant and equipment.

Table 9: Key benchmarks for cropping cost-effectiveness

Benchmark	Top 20%	Remaining 80%	Range	
			Min	Max
Variable costs as % income (crop)	54%	73%	49%	122%
Fertiliser cost/t of wheat yield	$35	$41	$24	$88
Chemical cost/t of wheat yield	$30	$57	$23	$131

The results show that the top 20% of businesses spent 54% of their crop income on variable costs and $35/t of wheat yield on fertiliser and $30/t of wheat yield on chemicals, and these results were in a period where two of the three years surveyed were very low rainfall seasons. Results from other regions show that the top 20% of business spend 40% of their crop income on variable costs and $30/t of wheat yield on fertiliser and $25/t of wheat yield on chemicals. Thus, it would be expected that northern Victoria is no different in better seasons.

The top 20% of business spend 40% of their crop income on variable costs and $30/t of wheat yield on fertiliser and $25/t of wheat yield on chemicals.

Variable cost-effectiveness is a key driver of cropping profitability for the top 20% businesses. These businesses are only spending 54% of their income on crop variable costs, compared to 73% of income for the remaining 80%. Therefore, they have an extra 19% of crop income that can go straight to the bottom line and increase their profitability.

The results presented in Table 9 and in the preceding tables demonstrate that high performing businesses are leveraging more from their investment in the key variable costs of fertiliser and chemicals. Businesses with a lower investment in fertiliser and chemicals/t produced are not always investing less/ha (see Table 8) but, have a more balanced approach to variable costs and are able to leverage strong yields from their investment in variable costs.

Those that perform well on these indicators are doing one or more of the following:

- leveraging additional yield from their/ha investment in fertiliser and chemicals through good agronomy and excellent timeliness
- successfully integrating legume crops or pastures into their crop rotation to fix soil nitrogen that can be utilised by subsequent cereal and oilseed crops and manage potential weed threats, including chemical resistance
- tailoring nitrogen applications to seasonal potential and avoid applying very high rates of in-crop nitrogen that are unlikely to be converted to yield
- balancing up the influence of late season production shocks such as frost, lodging, failed spring or heat shock during grain fill
- applying a more robust crop rotation that is setting up each crop type to optimise yield and gross margin.

On farm actions

Some of the actions you could take to improve your system are:

- ☐ calculate your crop gross margin/paddock or block and monitor it accurately
- ☐ calculate the benchmarks shown above to see how you are going against the targets
- ☐ review your crop rotation and in-crop agronomy with your agronomist to check that you are making the best use of your inputs
- ☐ define your optimal sowing window and develop a plan (including a allowing for contingencies) to consistently sow all of your crop in that window
- ☐ target your timing of chemical applications when weeds are smaller and easier to kill
- ☐ use tools such as Yield Prophet to guide seasonal potential and nitrogen applications.

4.3 Livestock

◆ Livestock variable costs

Your livestock gross margin is your gross income (livestock sales, inventory change and wool production) less your variable costs. In this context, variable costs refer to those costs that vary with production. They are not called variable because they might vary or change from year to year, but because their use varies or changes with production.

Livestock variable costs include:

- agistment
- AI or other breeding costs.
- animal health
- contract work
- fertiliser
- fodder conservation
- freight
- fuel
- gypsum and lime
- livestock selling costs
- machinery repairs and maintenance
- seed
- shearing and crutching
- sprays and chemicals
- supplementary feed
- wool selling expenses.

◆ Gross margins

The livestock gross margins achieved by those surveyed in northern Victoria are shown in Table 10. The key insights from this table are:

- The top 20% achieved a livestock gross margin/DSE of $11/DSE (or 42%) greater than the remaining 80%.
- The difference in livestock gross margin was due to a difference in income not costs, as variable costs for the top 20% were only $1/DSE (or 3%) greater than for the remaining 80%.
- The top 20% earned $72/DSE (or 20%) more from a similar investment in variable costs.

Cost-effective income generation is a key driver of livestock profitability for the top 20% of businesses.

Table 10: Livestock gross margins

Benchmark	Top 20%	Remaining 80%	Max/min
Livestock revenue/DSE	$72	$60	$84
Livestock variable costs/DSE	$35	$34	$23
Livestock gross margin/DSE	$37	$26	$50
Variable costs as % income (livestock)	50%	58%	39%

Cost-effectiveness for the livestock enterprises in this survey was about earning more from the same investment, which was similar to the cropping enterprises.

That is, the top 20% of businesses only spend about 50% of their income on livestock variable costs, compared to 58% of income for the remaining 80%, leaving an extra 8% of livestock income to increase their profitability. Just like the cropping benchmark.

◆ Individual animal performance[8]

Individual animal performance is a major driver of livestock profitability and one of the main reasons behind the cost-effectiveness of the top 20% of businesses. Reproduction rate, mortality rate, turn-off rate and, for sheep, adult fleece value are all key drivers of individual animal performance.

The results from this survey[9] (see Table 11) show that the top 20% achieved average turn-off live weights for lambs only 1kg/hd (or 2%) greater than the remaining 80%, whilst average turn-off live weights of up to 60kg/hd were achieved. Adult fleece value/head did differ significantly between the top 20% ($43/hd) and remaining 80% ($36/hd, and fleece values of $76/hd were achieved within the sample.

Table 11: Individual animal performance benchmarks

Benchmark	Top 20%	Remaining 80%	Max/min
Average turn-off live weight/head (beef)	450	n.a.	n.a.
Average turn-off live weight/head (sheep)	51	50	60
Adult fleece value/head	$43	$36	$76

Heavy turn-off weight, from a pasture or paddock based diet, within a reasonable age profile, is a key profit driver in livestock enterprises. It is very difficult to have a highly profitable livestock enterprise if you are turning off store animals. Turn-off weight is an opportunity to generate more revenue from the annual 'overhead' pasture intake of the breeding animal.

8 The workshop notes from MLA's Southern Business EDGE workshops have been a handy reference for this section.
9 The northern Victoria survey sample had a very small number of cattle enterprises, therefore we have presented the national benchmark.

A well-structured flock or herd is one that is achieving killable weights on all progeny produced in a decile five season(s). Ideally, a long-term average turn-off weight of 52–55kg live weight for lambs and 400–450kg live weight for beef. Increasing turn-off weight provides scope to have more pasture consumption on the farm being allocated to saleable product rather than animal maintenance.

Ideally, heavy turn-off weight is achieved from a pasture or stubble based diet, rather than through supplementary feeding. This purely comes down to the cost of pasture (often around $0.08/kg of dry matter) in comparison to supplementary feeds (often greater than $0.30/kg of dry matter when fully costed and inclusive of labour). The economics of feeding a pasture diet costing $0.08/kg of dry matter (or $80/t) versus feeding a supplementary feed diet costing upwards of $0.30/kg of dry matter (or $300/t) is obvious.

The major difference between a sheep and beef enterprise is wool production. Adult fleece value harvested from the breeding ewe is another significant opportunity to increase revenue generation in a dual-purpose flock. Entry level benchmark of $40/adult fleece is necessary and there are Merino genetics capable of harvesting $80–100 in adult fleece value. These benchmarks are based on long-term decile five wool pricing, rather than current spot pricing, which is very strong and adds at least $10 to each of these benchmarks.

Given that wool grows best on a maintenance diet, fleece value is close to being a grass free trait in the sense that an ewe with a $60 fleece value is unlikely to require much more pasture intake than an ewe producing a $40 fleece. This is what makes adult fleece value such a significant profit driver, as essentially it provides scope to increase revenue production from existing inputs.

Increasing adult fleece value is achieved through an objective focus on simultaneously increasing clean fleece weight and decreasing fibre diameter. Selecting rams on these measures using ASBVs together with visual appraisal for structural correctness is the best way to achieve this. In a dual-purpose flock, there is a need to balance selection for fleece value with selection for fertility and resilience traits, such as fat cover and eye muscle depth.

A robust, long-term, forward looking target for fleece value in a dual-purpose flock is $60/breeding ewe, if you are using Merino ewes as the basis of your flock. If you are using an F1 or composite ewe, it is very difficult to achieve this $60 benchmark for adult fleece value and a significant increase in weaning % (often more than 30%) is required to compensate for the lower wool income.

◆ Stocking rate

Stocking rate/ha is driven by land class and the associated management of the feed base. It is important to understand that three important conditions must hold for stocking rate to be a key lever to enhance profitability in a livestock enterprise. These conditions are as follows:

- greater than 400mm of annual rainfall
- a responsive feed base that can be cost effectively fertilised
- improved pasture species in the pasture base.

The first important condition did not hold for this survey, even in those areas that normally would meet these conditions. Therefore, we have not presented the stocking rate data from this survey. The seasonal conditions, the use of stock containment areas and supplementary irrigation meant that there was no valid comparison to be made.

However, where these conditions hold, e.g. the southern parts of the Wimmera, north-central and north-east Victoria, manipulating stocking rate is a key profit driver. In such regions, a robust target is to achieve a target stocking rate of two DSE/ha/100mm of annual rainfall.

In the lighter soil type (lower rainfall regions of the Mallee) these conditions do not hold and, as a result, the opportunity to manipulate higher stocking rates is not available. In such environments, there is a more conservative and sustainable stocking rate that these land classes can carry, beyond which environmental damage would be a genuine risk. In lighter soil type, lower rainfall environments the opportunity to increase revenue comes down to a focus on animal unit performance.

To sustainably increase stocking rate, additional kilograms of dry matter production are required to sustain the additional livestock numbers and allow a suitable level of individual animal performance to be achieved. This comes down to management of the feed base and the priority order in which on farm pasture based dry matter is allocated between different classes of livestock. This is a unique and important skill for all livestock managers to have.

Some fundamentals of feed base management include:

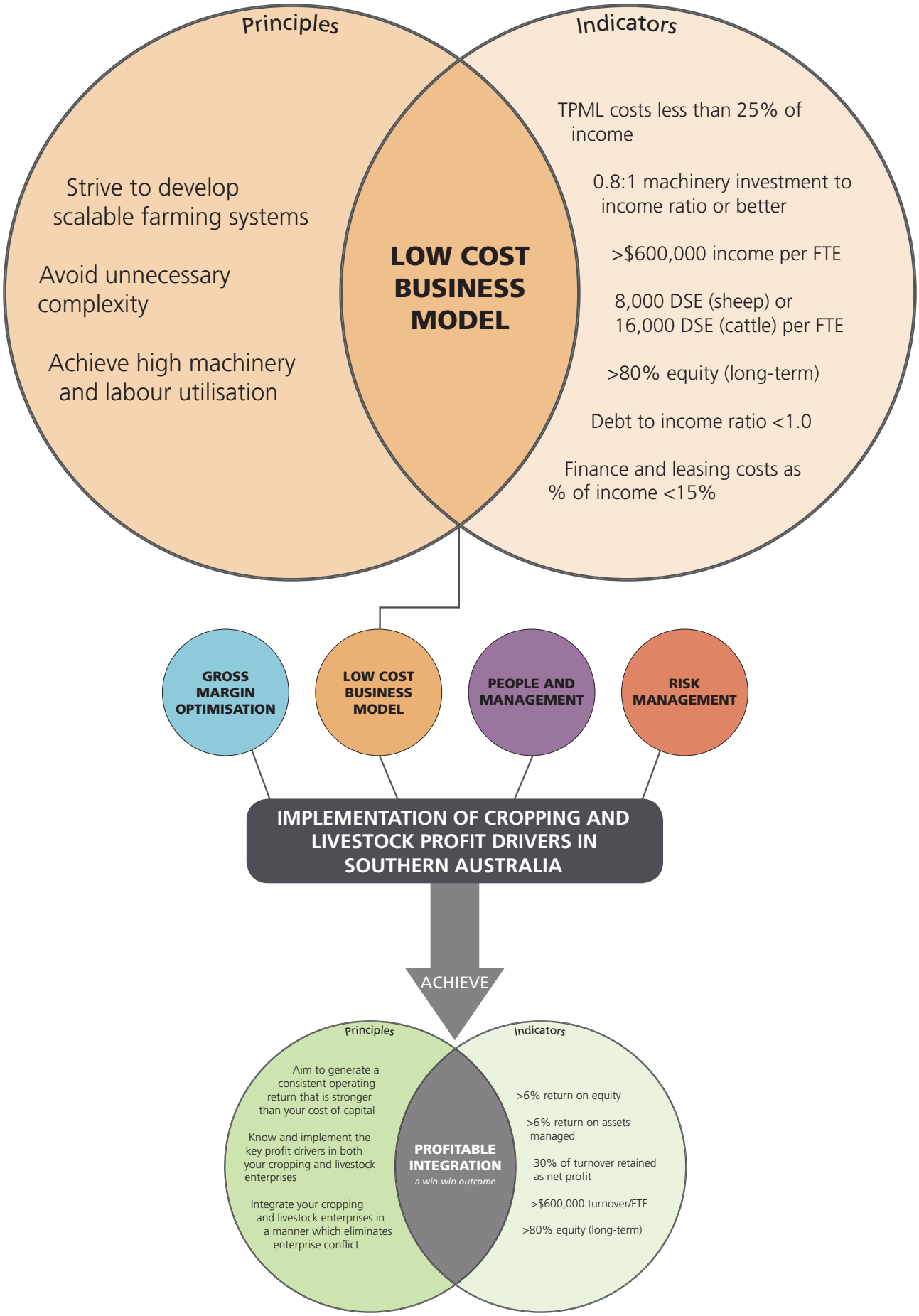
- Understanding that soil pH is a foundation stone to optimal dry matter production. Low pH acidic soils will constrain pasture production by limiting the availability of important macro and micro nutrients.
- A replacement strategy for phosphorus removed is critical to sustainably maintaining dry matter production and hence long-term stocking rates. Unfortunately, full nutrient replacement in southern grazing systems is rare. One DSE/ha removes approximately 1 unit of phosphorus (P)/annum and annual replacement of removed phosphorus is strongly advocated.
- Pasture and fodder crops accumulate dry matter far more rapidly when conditions are warm and soil moisture is available. Given this, it is essential for sown pastures or fodder crops to be sown as early in autumn as possible to ensure that they have every opportunity to productively accumulate dry matter on the first opening rains. Delaying sowing fodder crops or pastures to late May or early June is detrimental to dry matter production, as day length and soil temperatures start to drop significantly.
- Pasture density has a significant influence on dry matter production.
- Rest can be a powerful tool to increase dry matter production. Ideally pastures like to be grazed hard and fast and then rested. This can be beneficial, if achieved in a manner which is practical, cost effective, and efficient on labour demand.

On farm actions

Some of the actions you could take to improve your system are:

- ☐ calculate your livestock gross margin/paddock or block and monitor it accurately
- ☐ calculate the benchmarks shown above to see how you are going against the targets
- ☐ target ewes in condition three score at joining and lambing
- ☐ scan for singles and multiples and manage separately with preferential feed allocation for twin-bearing ewes
- ☐ monitor ewe mortality and investigate if its greater than 3%/year
- ☐ adopt a fleece value mentality and select for increased fleece weight and reduced fibre diameter.

5 Low cost business model



5.1 Principles

Gross margin optimisation can only take you so far with developing superior and consistent long-term profitability in a farming business. Gross margin optimisation is often what we focus on most as producers, as our interest in production related topics is often stronger than our interest in rationalising the overhead cost structure within our business.

However, improved overhead cost efficiency is a significant profit driver which varies between the top 20% and the remaining 80% of farm businesses. Developing a low cost business model is a measure of structural efficiency and provides opportunity to increase profitability.

The three key principles to achieving a low cost business model are:

1. Strive to develop simple and scalable farming systems
2. Avoid unnecessary complexity
3. Machinery and labour utilisation are significant profit drivers.

5.2 Simple and scalable

Scale alone is not an effective profit driver.

Scale alone is not an effective profit driver. A large-scale business is only effective at achieving high levels of profitability if it pays appropriate attention to the four primary profit drivers (see page 8).

However, increasing enterprise scale can assist with achieving peak labour and machinery productivity, because investments in better, more efficient machinery and labour-saving infrastructure may become more cost-effective, and within reach.

Increasing enterprise scale can assist with achieving peak labour and machinery productivity.

Whenever we add an additional enterprise we dilute enterprise scale internally.

For example, if we move from an 100% cropping enterprise, to a mixed cropping and livestock enterprise, we are diluting the available scale to the cropping enterprise and could potentially be developing a sub-optimal scale livestock enterprise.

However, there may well be a strong business case for adding livestock to a cropping business in regard to managing frost, waterlogging, resistant ryegrass or another constraint. There could also be a natural requirement for a livestock enterprise to make better use of non-arable land, such as grazing hills.

Acknowledging that there is often a strong fit for mixed (cropping and livestock) enterprises in many regions, we can still make the choice in regard to how complex or how simple we make the livestock enterprise.

For example, we could apply the principle of enterprise simplicity and establish one simple scalable livestock enterprise (e.g. prime lambs with purchased replacements), or we could overly complicate things by having prime lambs, self-replacing Merinos, beef breeding and a trading component.

Such diversity within the livestock enterprise will internally dilute the scale of each of these enterprises and potentially add too many layers of complexity. This increased complexity often compromises effectiveness and makes it difficult to achieve peak labour productivity targets, not to mention challenging your capacity to manage each effectively.

While multi-enterprise diversification has often been promoted as an effective method to manage commodity price risk, potential internal management risk is created as a trade-off. Often this internal management risk, from over complicating the enterprise structure, can negate the benefit from managing commodity price risk.

The following challenges can be associated with excessively diverse farming businesses:

- internal dilution of scale
- duplication of capital, as each new enterprise requires some specialist infrastructure or capital
- diversion of focus and attention between enterprises
- the scope for enterprise conflict to quietly erode profitability in one or more enterprises
- the principle of simplicity is compromised with the challenge of managing complexity.

Therefore, striving to develop simple and scalable farming systems, and avoiding unnecessary complexity are key principles for achieving a low cost business model.

5.3 Labour and machinery

◆ Defining the key benchmarks

- **Income/FTE** = total income, divided by the total amount of labour used, whether employed, family or contract (labour is measured as full time equivalents (FTEs), which is 1,950 hours/year). This benchmark is the ultimate indicator of how effectively you convert labour into income and deals with the different labour needs of different enterprises, by measuring it in $/FTE.
- **Cropped area/FTE** = total area of cropped land divided by total amount of labour used to manage that cropped land. It is one effective indicator of your crop labour productivity.
- **DSE managed/FTE** = total livestock, measured in DSE, dividend by total amount of labour used to manage those livestock. It is one effective indicator of your livestock labour productivity.
- **TPML** = total plant machinery and labour, which is used to compare businesses that employ an 'own and operate' model with a contractor model for their machinery and labour. It includes all costs associated with owning, operating or contracting machinery and employing or contracting labour, as a percentage of income. This benchmark is useful to measure how well a business is utilising their investment in labour and machinery. The most efficient businesses achieve a TPML <25%.
- **Machinery investment to income ratio** = the total market value of your machinery, divided by income. This benchmark helps you identify whether you have the right scale of investment in machinery for your business, i.e. 0.8 or better is seen as the right target, whereas ratio substantially higher than that may indicate you have over-capitalised your business with machinery.

◆ Performance against key benchmarks

The key labour and machinery benchmarks and what was achieved by businesses in this survey in northern Victoria are presented in Table 12. The key insights from this table are:

- The top 20% earned $77,012 (+26%) in income/full-time equivalent person (FTE) more than the remaining 80%, despite the poor seasons experienced during the survey period.
- Similarly, the top 20% had a TPML benchmark (43% v 46%) and machinery investment ratio (0.7:0.9) better than the remaining 80%.
- However, the most labour and machinery efficient businesses achieved a TPML benchmark of 39% and income/FTE of almost $500,000 ($495,942), despite the poor seasons achieved.

Thus, the top 20% of businesses in this survey in northern Victoria are achieving labour and machinery productivity substantially better than the remaining 80%, despite the poor seasons achieved. As a result, they have lower cost business models, which are a key profit driver of their businesses. Their performance indicates that they have the potential to achieve long-term average TPML of 30% and income/FTE of $600,000, as the top 20% have achieved in other regions where the survey was not skewed by two out of three poor seasons.

Table 12: Key labour and machinery benchmarks

Benchmark	Top 20%	Remaining 80%	Max/min
Income/FTE	$367,962	$290,950	$495,942
Cropped area/FTE	528	605	859
DSE managed/FTE	5,619	4,871	8,405
TPML as % income	43%	46%	39%
Machinery investment to income ratio	0.7	0.9	0.6

◆ Achieving labour and machinery productivity

The optimal labour productivity targets are to manage 8,000 DSEs/FTE in a sheep enterprise and 16,000 DSEs/FTE in a beef enterprise. While property layout and land class can have a significant influence on how realistic achieving these targets can be, they are nonetheless robust targets to strive for. An alternative measure of labour productivity in a mixed enterprise is income/FTE. A robust target in a mixed enterprise setting is $600,000 of business income/FTE.

The optimal labour productivity targets are to manage 8,000 DSEs/FTE in a sheep enterprise and 16,000 DSEs/FTE in a beef enterprise.

A robust target in a mixed enterprise setting is $600,000 of business income/FTE.

Similarly, for machinery productivity, businesses should be aiming for a TPML<25% and a machinery investment to income ratio of <0.8. The two benchmarks are obviously linked as good quality, reliable and fit-for-purpose machinery and infrastructure are key drivers of labour productivity.

Businesses should be aiming for a TPML<25% and a machinery investment to income ratio of <0.8.

Beyond knowing the targets and understanding that too much enterprise complexity can be compromising, achieving peak labour and machinery productivity generally comes down to:

- developing simple and scalable patterns of work
- getting organised and matching the logistical support for key operations like sowing, harvest and shearing
- investing in targeted infrastructure and machinery that can save labour.

Simple and scalable patterns of work must combine both effectiveness and efficiency. Effectiveness should come first (are we doing the right things that are closely aligned with key enterprise profit drivers) and then followed by efficiency (are we doing the right things in the most efficient way possible). Achieving efficiency without effectiveness is substantially flawed.

Simple and scalable patterns of work must combine both effectiveness and efficiency.

Developing simple and scalable systems of work often involves:

- harnessing the power of enterprise simplicity
- optimising how often livestock need to be mustered and handled and looking to achieve multiple treatments/yarding to avoid duplication on mustering and reduce the number of times livestock need to be yarded on an annual basis
- developing and reinforcing efficient patterns of work across your team
- developing scalable production systems that can be efficiently and effectively scaled up when opportunity to do so allows.

The quality of infrastructure on a property also has a significant influence on the ability to achieve peak labour productivity. Infrastructure extends to:

- fencing, laneways, and grids
- yards and handling systems
- developing quality water infrastructure
- adopting the principle of 'doing things once'.

Remember, it is not necessarily scale that drives high labour and machinery productivity, but rather how your investment in labour and machinery is matched to the size of your business. For example, utilising contractors requires consideration when designing a low overhead cost business model, particularly if contracting is more cost effective than owning and operating a piece of equipment for a required operation.

Remember, it is not necessarily scale that drives high labour and machinery productivity, but rather how your investment in labour and machinery is matched to the size of your business.

It is not an all or nothing strategy. You may own and operate certain equipment for particular operations and contract others, or you may even use contractors to 'top up' your operating capacity in certain seasons or situations (e.g. a reduced sowing window, or an especially large harvest). The key is to have a simple scalable model with a focus on cost effectiveness.

The key is to have a simple scalable model with a focus on cost effectiveness.

5.4 Finance

◆ Defining the key benchmarks

- **Equity %** = your net worth, or the value of your assets owned less your liabilities, divided by the value of your assets owned. This benchmark can vary quite a lot depending on the stage of your business and/or as you seek to expand over time, however a long-term target of 80% is seen as prudent.
- **Debt to income ratio** = the total value of your liabilities, divided by your income, as a ratio (similar to the machinery investment ratio). This benchmark helps you identify whether you have the right scale of debt for your business, i.e. 1.0 or lower is seen as a prudent level of debt, whereas a ratio substantially higher than 1.0, particularly in the long-term , may indicate you are vulnerable to price or seasonal shocks because of your level of debt.
- **Finance and lease costs as a percentage of income** = the total of your interest, hire purchase and lease costs as a percentage of your income. It is similar to the debt to income ratio benchmark, but it includes lease costs, which can be associated with the alternative means of accessing land. A benchmark of >25% indicates your business may be vulnerable to price or seasonal shocks, whilst a long-term target of <15% is seen as prudent.

◆ Performance against key benchmarks

The key finance benchmarks and what was achieved by businesses in this survey in northern Victoria are presented in Table 13. The key insights from this table are:

- The top 20% of businesses had an equity percentage of 80%, whilst the remaining 80% were at 76%.
- The top 20% of businesses achieved debt to income ratios of 1.0 and finance and lease costs as a percentage of income benchmarks of 15%.

Thus, consistent with labour and machinery productivity, the top 20% of businesses are achieving finance benchmarks equivalent to industry best practice and substantially better than the remaining 80%. This greatly assists them to maintain a low cost business model and achieve greater profitability then the remaining 80%.

Table 13: Key finance benchmarks

Benchmark	Top 20%	Remaining 80%	Max/min
Equity %	82%	76%	85%
Debt to income ratio	1.0	1.6	0.7
Finance and lease costs as % income	15%	13%	10%

◆ Managing debt levels

The level of debt held on the balance sheet is an important choice and consideration for any business. This level will vary with the stage of the business, i.e. developing or expanding v mature and stable. It also often varies with the age of the owners. However, the key outcome has to be that the business can service its debt, repay capital and allow for the operating needs of the business and the lifestyle needs of the owners. Short-term pain can justify long-term gain, but ultimately a business has to pay its own way.

The level of debt held on the balance sheet is an important choice and consideration for any business.

The decision of how much debt a business can sustainably service is an important one. The approach should be to maximise your operating profit or earnings before interest and tax (EBIT) through applying the core principles outlined for gross margin optimisation and a low cost business model in this management guideline. Then, decide how much debt (including hire purchase, lease land, etc.) the business can afford to service in a sustainable manner, including how much you can sleep at night with.

5.5 A disciplined approach

A low cost business model is essentially a disciplined approach to maintaining a low overhead cost structure. It is achieved by keeping general overheads low, ensuring a high level of labour and machinery productivity and having a serviceable level of debt.

On farm actions

Some of the actions you could take to improve your system are:

- ☐ embrace simplicity in your work patterns and enterprise mix
- ☐ calculate the benchmarks shown above to see how you are going against the targets
- ☐ match the scale of each of your enterprises to your investment in labour and machinery
- ☐ review how often livestock need to be handled by looking for opportunities to do multiple treatments per yarding and avoid duplication of effort
- ☐ review your current infrastructure and develop a plan to invest in quality, labour efficient and people-friendly infrastructure
- ☐ search for opportunities to enhance the effectiveness and efficiency of your work patterns.

6 Case Study – the advantages of a low cost business model

6.1 Key benchmarks

Annual rainfall	350mm
Farm size	3,850ha
Enterprise	Canola, wheat, barley, beans and Merino and first-cross ewes
ROAM	4.0%
TPML	39%
Machinery investment to income ratio	0.6
Income/FTE	$500,000
Cropped area/FTE	850ha
DSE's managed/FTE	8,500

6.2 How is this being achieved?

Suzanne and Alister farm in the northern Wimmera region of Victoria, which experienced two very poor seasons out of the three seasons surveyed for this research. Despite this, they achieved a very healthy return on assets managed (ROAM) of 4.0%. The secret to their success in these seasons was a low cost business model.

They have always believed in keeping their overhead costs to a minimum for the very reason of guarding against seasons like those experienced during this survey and ensuring that they can remain profitable in all, but the very worst of years.

The data collected from the other mixed farming regions in southern Australia as part of this survey shows that a TPML of less than 30% and income/FTE of $600,000 is achieved by the TOP 20% over the long-term . Thus, Suzanne and Alister's TPML of 39% and income/FTE of $500,000 achieved over this period is exceptional and indicates that they have the potential to achieve the national benchmarks over the long-term .

This potential is demonstrated by their relatively low machinery investment to income ratio at 0.6, i.e. $0.60 invested in machinery for every $1.00 of income earned, and labour efficiency of 850ha and 8,500 DSE/FTE.

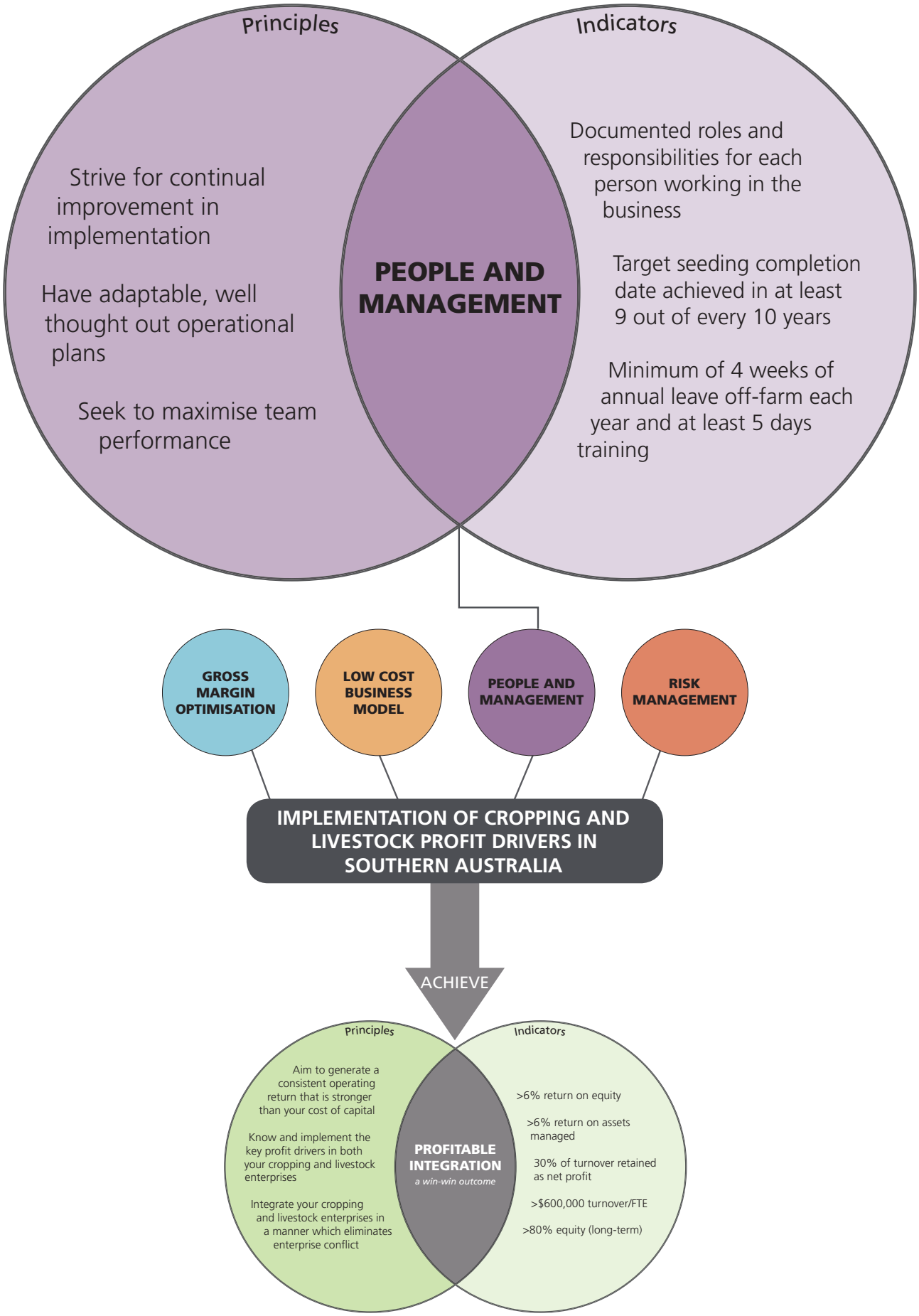
This is achieved by:

- focusing on a simple high value enterprise mix in which they have strong capacity and confidence
- farming in blocks, rather than paddocks to simplify logistics
- intelligent logistical planning, with a shared-use diary that includes time set aside for planning and preparation of major activities like sowing, harvesting and lambing
- preparing machinery well in advance and ensuring that it is all efficient and working hard to avoid having 'lazy assets' or being 'over-capitalised', whilst minimising break-downs
- building in contingency plans for break-downs and weather
- ensuring all major expenditure decisions are based on numbers, logistics and achieving their aims, rather than emotion or fashion.

Suzanne and Alister constantly review their performance, with the help of their agronomist and farm business consultant. They are continually looking for ways to improve and believe strongly that ‘if you can’t measure it, you can’t manage it’. They strive to pick up on what is going on around them, pay attention to detail, but do not lose sight of the bigger picture. They believe in ‘active management’ rather than ‘passive management’ which means that seek to plan and think about how to respond to opportunities and challenges, rather than simply react and let things happen to them and their business.

Most importantly, they understand the contribution a low cost business model has on their overall profitability and the resilience of their business to deal with external shocks. They are focussed on ways to continually get more from their system without burning out machinery or people, but rather looking for ways to streamline systems, aiding timeliness of operations and getting the most out of all of their resources. A low cost and profitable business model also provides the opportunity for them to continually grow their business in a sustainable and resilient manner.

7 People and management



7.1 Principles

A good manager or management team is able to extract greater profitability from any given rainfall or soil type resource or constraint. Successful people management is a key profit driver for all agricultural businesses.

In recent years, a 'significant change that has occurred is that the number of farm employees now exceeds the number of owner/managers'[10]. This results in farms now being more reliant on employed labour to achieve successful outcomes. Successfully managing people is a strategic focus, and a key skill of a business owner/manager.

In the context of this section, people management refers to:

- managing yourself as an owner/manager, as well as managing and leading a team
- employed labour (traditionally non-family labour) and family labour. When labour is referred to, it refers to all labour (family and non-family)
- an imputed labour cost for family labour who are remunerated via drawings, included to enable comparison of different business structures.

Three key principles to successful people management have been identified. These are as follows:

1. Strive for continual improvement in implementation
2. Have adaptable, well thought out operational plans
3. Seek to maximise team performance.

7.2 Strive for continual improvement in implementation

To strive for continual improvement in implementation, the top 20% identify bottlenecks and commit resources and training to address issues, and they commonly benchmark their performance.

The top 20% businesses focus on understanding and managing the labour resources associated with their whole business, as well as each enterprise and task. They ensure the right person (roles and responsibilities) is on the right task (goals and plans) for the right length of time (work schedules). This is effective delegation and is a skill that can be learnt.

As was outlined in the low cost business model profit driver, effectiveness and efficiency are important. This is similarly so for people management.

The team needs to have appropriate resources to ensure the work can be undertaken effectively and efficiently. Appropriate resources in a people management context means:

- improving and maintaining competency (knowledge and skills) via training (internal or external)
- providing appropriate tools of the trade to allow work to be undertaken efficiently, including cost effective machinery and infrastructure (yards, sheds, paddocks, machinery), well set-up work utes (organised toolboxes), personal protective equipment and uniforms
- a safe workplace which has a strong safety culture, is free from risks, is welcoming, and is inclusive of all team members
- a structure that allows for feedback, review and continual development at a whole-of-business, enterprise, task and team level
    - develop a plan for the year ahead, review how it went
    - develop a plan for the enterprise/task, review how it went
    - develop a plan for the team member, review how it went.

10 The Changing Agricultural Workforce, Richard Heath, Farm Policy Journal, Vol. 14, No1, Autumn Quarter 2017.

7.3 Have adaptable, well thought out operational plans

The top 20% have robust operational plans that include appropriately scheduled holidays, time buffers for critical operations and contingency plans that achieve operational timeliness despite variable conditions.

The top 20% businesses develop, implement and review operational plans that ensure timeliness of key tasks. These include:

- sowing, spraying and harvesting
- joining, lambing, calving and weaning
- shearing and crutching
- marketing, budgeting and financial reporting
- training and holidays.

As has been identified in similar research elsewhere[11], the top 20% businesses:

- focus on a longer-term planning horizon and do not let short-term 'speed bumps' get in the way of longer-term goals or targets
- have a strong sense of commitment to their approach and focus on successful implementation of their chosen system. This allows a longer-term approach to be undertaken and avoids distractions associated with shorter-term thinking
- are very good at identifying where they will get the best return on energy invested. They have a strong focus on the things that they can change and control, rather than unnecessarily investing energy into factors over which they have little or no control.

These principles can all be applied to the successful integration of cropping and livestock too.

Holidays are an essential part of the annual operations plan. Holidays allow time for recharge and create balance for owners and employees. Being able to take holidays is an outcome of good planning and effective training and delegation.

Ideally, at least four weeks holiday, will be taken/year for both owners and employees. This time is most effective taken in blocks of time rather than 'long weekends'.

11 GRDC, 'The integration of technical data and profit drivers for more informed decisions'.

7.4 Seek to maximise team performance

The top 20% businesses focus on maximizing the potential of their whole team through a desire to achieve shared objectives, building trust and respect between members, having effective management systems that encourage good communication, and a training and mentoring plan for each member.

This is achieved through implementing the following:

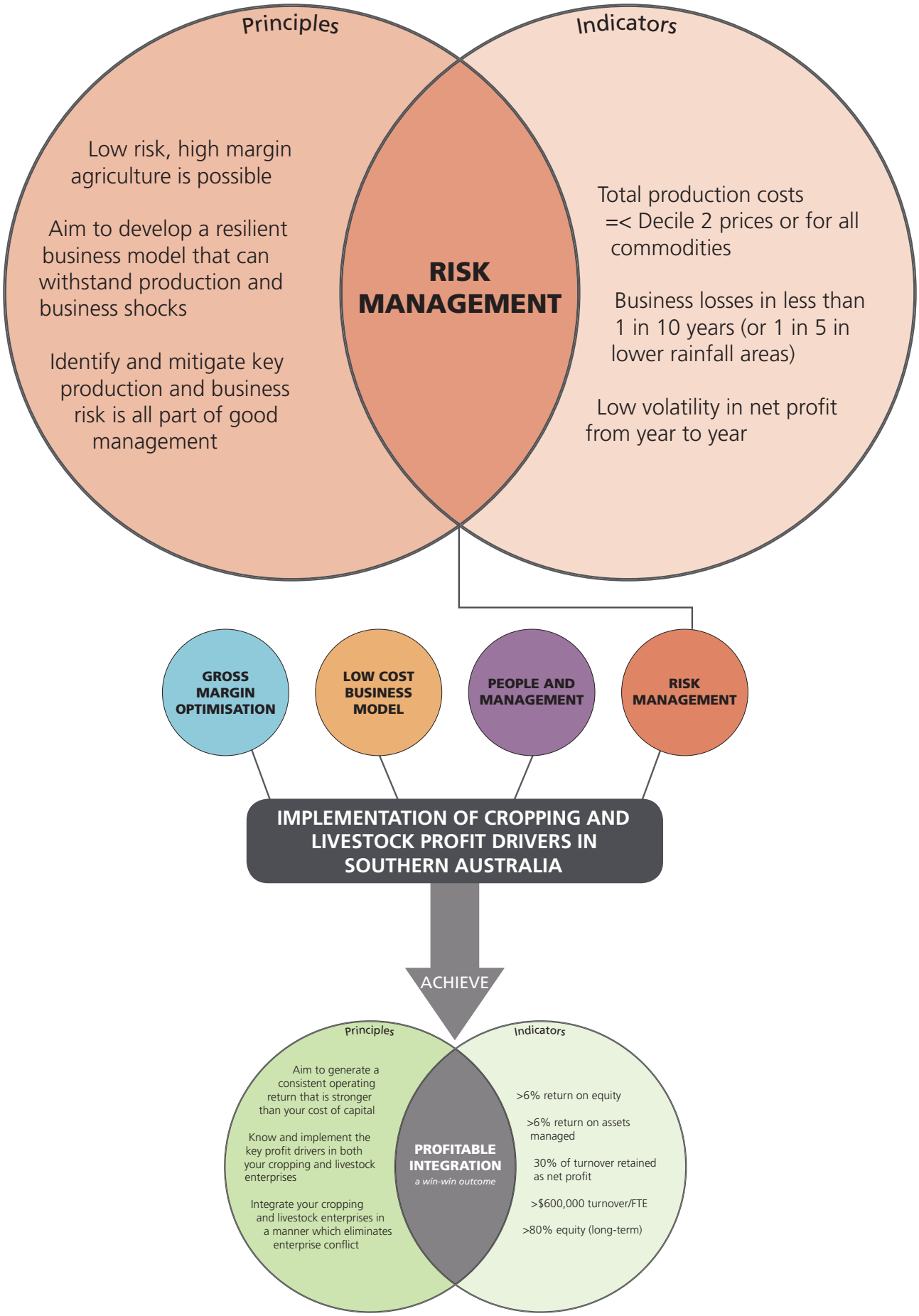
- ensuring clarity for roles and responsibilities via job descriptions, clear work plans and good communication
- communicating and annually revisiting the shared vision and goals for the business
- prioritising time for self-development and recharging, including internal and external training
- reviewing team performance via individual performance reviews, at least once a year, which focus on the training and mentoring required to increase competency
- measuring and monitoring time worked in the business to understand the bottlenecks, as well as effectiveness
- keeping abreast of the rural employment marketplace, and what motivates employees (employment conditions, competitive wages and incentives).

On farm actions

Some of the actions you could take to improve your system are:

- ☐ focus your energy on those things that affect your business that you can control
- ☐ develop an annual operations plan that focuses on achieving timeliness for all critical events
- ☐ regularly review business and operational effectiveness with your whole team to identify opportunities for improvement
- ☐ develop and maintain a strong safety culture
- ☐ develop job descriptions and implement annual reviews with all team members
- ☐ train all of your team in crop monitoring and livestock observation skills to allow for early intervention.

8 Risk management



8.1 Principles

We are all very aware of the common risks that we are exposed to in agriculture. Commodity price fluctuations, seasonal variation and volatility, interest rate movements, frost exposure, extreme winds, heat shock and rainfall or weather damage at harvest, are all common experiences.

So, what is the ultimate counter measure to agricultural production risk? Profit.

The answer is about achieving business resilience through developing a high profit margin business model. Every time that we add profit margin to a commodity-based business we reduce the overall risk profile of that business. Energy invested into adding profit margin to a commodity based business through both gross margin optimisation and developing a low cost business model is likely to mitigate more risk than employing a full suite of complex risk management products.

Optimising gross margins and developing a low cost business model are all choices within the control of your management.

Effective risk management is primarily about eliminating internal management risk. This includes simple scalable systems, effective processes and a positive mindset that helps drive consistent implementation under variable conditions.

Top 20% businesses are consistently generating stronger gross margins/ha from a common or lower cost base. They consistently invest less in TPML related costs, as a result of achieving excellent levels of utilisation from machinery and labour. The great thing about removing $50,000 from your overhead cost structure, is that this saving can still be achieved whether a decile 1 or a decile 10 rainfall year unfolds. By comparison, some production or yield related gains require reasonable seasonal conditions to eventuate.

At times the influence of internal management risk is overlooked, potentially because it can feel like a personal measure on our effectiveness and this can be confronting. Top 20% businesses tend to have a personal growth mindset. They are keen to know and understand where they can grow and improve over time. They are not afraid of taking full responsibility for the profit outcomes they achieve and to learn from their experiences.

Three key principles for successful risk management are:

1. Recognise and believe that low risk, high margin agriculture is possible
2. Develop a resilient business model
3. Identify and mitigate key production and business risks.

The key indicators of successful risk management are:

- total production costs are equal to or less than decile two prices for all commodities
- business losses in less than one in 10 years (or one in five in lower rainfall regions)
- low volatility in net profit from year to year.

8.2 Recognise and believe that low risk, high margin agriculture is possible

This is a paradigm shift. We are commonly taught that to achieve a greater return we need to be prepared to take on board greater risk. This might be true at an individual level, but the exciting aspect of top 20% businesses is that they are more profitable and have a much lower risk profile than the remaining 80%.

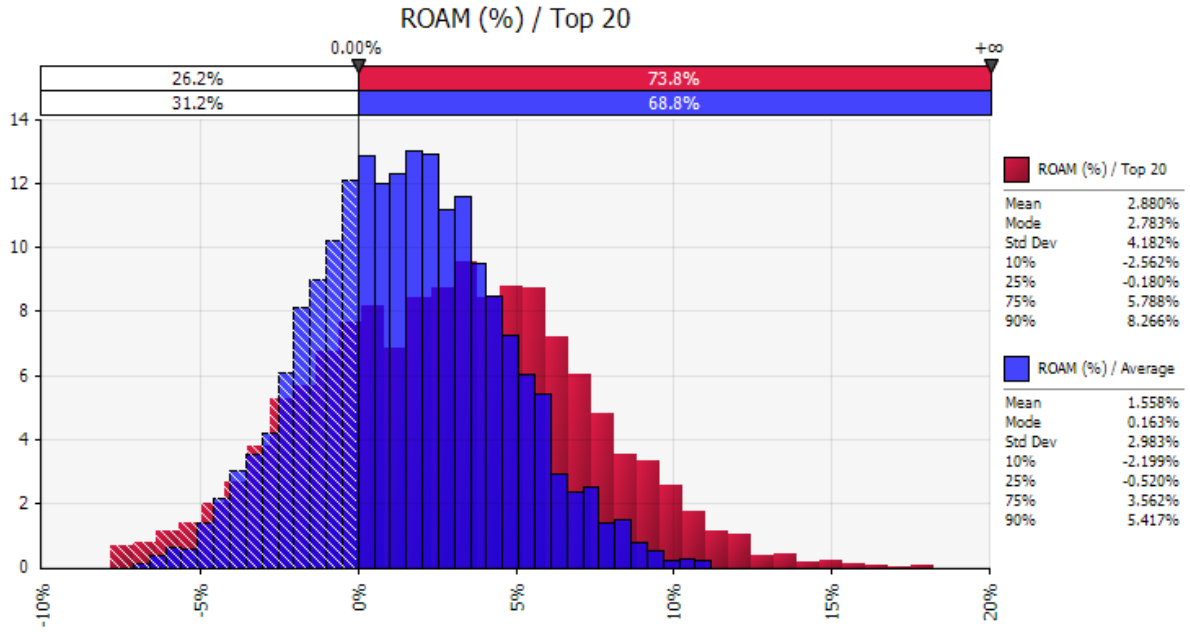
Low risk, high margin agriculture is possible, and we have to believe this paradigm shift to be able to structure and design our business model to achieve this very outcome.

Low risk, high margin agriculture is possible.

We used the @Risk simulation tool to model the response of the top 20% businesses to different seasonal and commodity price conditions, compared with the remaining 80%. The @Risk graphs below objectively capture how top 20% businesses have a lower risk profile, incur operational losses far less often and create upside risk, or margin capture, as a result of business model choices.

It is important to note that we included a catastrophic event in our @Risk modelling that reduced income by 50% once every 10 years. This added rigour to the modelling.

Figure 2: @Risk representation of ROAM between top 20% producers and remaining 80% producers in northern Victoria



We reduce our cost of production when we optimise gross margins and develop a low cost business model by focusing our efforts on achieving high levels of machinery and labour utilisation.

When we optimise gross margin and develop a low cost business model, by focusing our efforts on achieving high levels of machinery and labour utilisation, we reduce cost of production.

Having a low cost of production is our key weapon in a commodity production business. Having a low cost of production is what is creating the upside risk that we see in the above graph when favourable seasonal or price conditions eventuate. The value of upside risk is that it allows for additional margin capture.

Having a low cost of production is our key weapon in commodity production businesses.

8.3 Develop a resilient business model

A resilient business model is one that can incur a production or business shock and be able to quickly recover and bounce back. The top 20% businesses, which retain 30% of income as profit, become resilient by design. They can afford to incur a production or business shock that removes 30% of their income and still break even.

A production or business shock that removes 30% of business income from a business that is only retaining 10% of income as net profit, will result in a substantial loss being incurred. This loss is then likely to result in an increase in core debt.

Two businesses - same sector, same market and seasonal conditions, and yet very different levels of resilience. We should never underestimate how active decisions and choices in regard to gross margin optimisation and our overhead cost structure influence the underlying resilience of our business.

It comes back to margin. When we add profit margin, we reduce the overall risk profile of a business and increase its resilience.

8.4 Identify and mitigate key production and business risks

Risk management is about identifying and mitigating key production and business risks. It is important to recognise that we have more control over production and business risks than most of us think.

It is easy to get caught up in thinking that we cannot control the weather and that we cannot control commodity prices. However, it is more empowering and rewarding to recognise what we can control.

We can control our enterprise mix, our crop rotation, our operational timeliness, our crop and pasture agronomy and how much summer rainfall we conserve or utilise. All of these factors are within our control and all of them contribute to enhancing gross margin optimisation.

Similarly, we can control how effective and efficient we are with labour, our investment in plant and equipment and how much debt we employ on our balance sheet. All of which contribute to our overhead costs and whether we have a low cost business model or not.

Thus, focus on what you can control and influence and do something about it.

On farm actions

Some of the actions you could take to improve your system are:

- ☐ recognise that low risk, high margin agriculture is possible and think hard about how you can achieve it
- ☐ build profit margins and business resilience through applying each of the key enterprise profit drivers
- ☐ manage risk by investing time and energy into the things that are within your control
- ☐ accept that as a manager you have ultimate control of your long-term business profitability.

9 Business case for mixed farming

9.1 A big picture view

It is a healthy process to challenge whether running a mixed enterprise is resulting in a better business outcome than specialising in either cropping or livestock, as a single enterprise. We should take a big picture view, even if we feel that the land classes that we have under our management dictate that a mixed enterprise business is required, because we can still choose the business model we apply.

For example, we could choose to focus on our cropping enterprise and have a share farmer or tenant run livestock on the land classes that require a grazing enterprise, or vice versa. The important factor here is ensuring that the business case for mixed enterprise over single enterprise is strong, particularly when you consider that many surveys show that specialists are generally more profitable over the long-term than diversified businesses.

The business case for a mixed enterprise business can be looked at in either of the two following ways:

1. What is the business case for adding livestock to a cropping dominant business?
2. What is the business case for adding cropping to a livestock dominant business?

9.2 Business case for adding livestock to a cropping dominant business

The business case for including a livestock phase in the cropping rotation generally comes down to one or more of the following:

- livestock is part of the solution to optimise gross margins on high frost risk or potentially water-logged landscapes
- a livestock component to the rotation assists with ryegrass management and control
- lamb finishing on pulse stubbles is a very profitable use of a by-product (spilled pods and grain)
- livestock assists with stubble management
- pasture is the most profitable legume available to the crop rotation
- this is often the case in higher rainfall regions where water logging is a risk to consistent pulse crop yields
- including a legume dominant pasture in the rotation can also assist with making cereal crops more profitable through reduced nitrogen inputs
- recent advances in our understanding of grazing crops in higher rainfall areas also means there might be an opportunity to increase our income from those crops with livestock, whilst maintaining yield.

One of the key drivers of success is ensuring you have the right people to do the job. You and your team need to value livestock, have sound livestock management skills and ensure the livestock enterprise is not neglected as you strive to maximise the potential of your cropping enterprise. If you get it right, the benefits to your business can be significant, but if you do not get it right, you might be worse off than having done nothing at all.

9.3 Business case for adding cropping to a livestock dominant business

The business case for including a cropping enterprise into a livestock dominant business generally comes down to one or more of the following:

- cropping gross margins are significantly stronger than livestock gross margins on some land types
    - however, caution is needed, as gross margin might not count for all of the costs, especially with regard to the additional investment in machinery and/or contractors that is required
    - essentially, in this context, returns between cropping and livestock should be analysed at the EBIT level/ha rather than purely the gross margin level
- a cropping phase can assist with weed management and building soil fertility in longer term pastures
- aeration from tillage can be beneficial to longer term pastures to assist with overcoming compaction and water infiltration issues
- grazing of crops can potentially provide feed when there otherwise could be a deficit (early winter)
- pulse stubbles provide the opportunity to finish lambs in the summer months
- crop stubbles provide a good maintenance diet for breeding stock.

Just like introducing livestock into a cropping dominant business, you need to make sure you have the right people to successfully introduce cropping into a livestock dominant business. Cropping potentially involves substantial investment in machinery or, at the very least, the input costs to sow the crop. Thus, managing it well is crucial to achieving success, otherwise there might be more to lose than continuing with a lower input livestock enterprise.

The area of crop in our mixed farming areas has grown significantly in the past couple of decades, as a result of the relative profitability of crops over livestock, technological change, changing weather patterns and access to water. However, this is potentially changing again, due to strong livestock prices and increasing awareness (and experience) of the risks associated with cropping. This reinforces the importance of using long-term data when comparing cropping versus livestock returns, while also being mindful of trends.

10 National benchmarks

Benchmark	Top 20%	Remaining 80%	Max/min
Whole-of-business			
Return on assets managed (ROAM)	7.8%	3.9%	12.3%
Return on equity (ROE)	7.8%	1.4%	13.1%
Profit as % of income	28%	5%	50%
Gross margin optimisation – crop			
Crop income/ha	$1,133	$933	$6,699
Crop variable costs/ha	$469	$498	$95
Crop gross margin/ha	$664	$431	$3,116
Wheat water use efficiency (kg/ha/mm)	8.7	8.2	14.8
Variable costs as % income (crop)	44%	57%	23%
Fertiliser cost/t of wheat yield	$36	$38	$14
Chemical cost/t of wheat yield	$29	$32	$18
Gross margin optimisation – livestock			
Livestock revenue/ha	$609	$462	$3,003
Livestock variable costs/ha	$217	$221	$31
Livestock gross margin/ha	$392	$241	$2,396
Variable costs as % income (livestock)	40%	52%	23%
Stocking rate (DSE/ha/100 mm)	1.7	1.9	5.4
Average turn-off live weight/head (beef)	450	n.a.	n.a.
Average turn-off live weight/head (sheep)	50.0	47.0	71.0
Adult fleece value/head	$39	$40	$76
Low cost business model			
Machinery			
TPML as % income	28%	38%	20%
Machinery investment to income ratio	0.6	0.8	0.1
Labour			
Income/FTE	$513,725	$402,290	$1,233,816
Cropped area/FTE	525	427	1,818
DSE managed/FTE	8,329	7,965	27,526
Finance			
Equity %	82%	76%	99%
Debt to income ratio	0.9	1.5	0
Finance and lease costs as % income	7%	12%	0%

11 Diagnostic tools

The diagnostic tools below have been developed to assist you to identify potential areas for consideration to improve performance. If you find that the answer is no for any of these questions, then potentially these are areas with upside opportunity.

These diagnostic tools have been created for a number of the key benchmarks that relate to either gross margin optimisation or developing a low cost business model.

11.1 Gross margin optimisation

1. Income		Yes/No/Comment
Is your income/ha less than the benchmark for the level of rainfall that you receive? If so:		
1.1	Is your seeding completion date consistent with best practice?	
1.2	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?	
1.3	Are you making an effort to overcome 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	
	- cost effective claying, delving or spading	
	- lacking in macro-nutrients	
	- lacking in micro-nutrients	
	- hard pan to be addressed	
1.4	Does your farming system promote storage of out of season rainfall?	
	Context: With climate variability and increases in out of season rainfall events, preserving soil moisture pre seeding is an important building block to crop yield in many cropping environments.	
1.5	Does your farming system build soil health and organic matter over time?	
1.6	Does crop nutrition and agronomy match crop yield potential?	
	Context: Each season can offer different yield potential. It is important to manage realistic upside yield potential in favourable seasons when there is a strong business case to do so.	
1.7	Are you proactively monitoring crops for early disease and nutrition intervention?	
1.8	Does your harvest capacity allow crops to be harvested in a timely manner with minimal losses?	
1.9	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 percentage of income > 40%? If so:		
2.1	Are you balanced when making fertiliser decisions to prevent over or under investing in fertiliser inputs?	
	Context: Some growers are over investing in fertiliser inputs and fertilising crops in excess of requirements. This compromises variable cost efficiency and can also reduce grain quality.	
2.2	Are you balanced when making chemical decisions to prevent over or under investing in chemical inputs?	
2.3	Do you seek an independent perspective with crop agronomy?	
	Context: Suitably skilled independent crop agronomists can assist with optimising variable costs as selling product is not part of their revenue model.	
2.4	Does your crop rotation promote more modest investment into chemical and fertiliser?	
	Context: If there are opportunities to grow profitable legume crops they can assist with overall variable costs efficiency by reducing nitrogen inputs. Integrated weed management promotes cost effectiveness.	
2.5	Is your approach to machinery usage right to ensure low repairs and maintenance, 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?	
	Context: preventative maintenance can often prevent more expensive maintenance and avoid costly repairs mid-season.	
	- Is your property, machinery and management approach set up for optimising fuel usage? (paddock size and shape, implement width and capacity, essential passes only)	
	Context: Differences in paddock shape and size have been observed to drive up to 20% difference in fuel usage. Larger scale, wider implements are generally more fuel efficient/ha also.	
2.6	Do you limit storage fees and charges by proactively managing grain market before and during harvest?	
	Context: It is important to understand the costs associated with holding grain post harvest as storage fees and other holding costs such as interest can quickly add up each month	
1a and 2a. Gross margin optimisation		
Are your long-term gross margins less than the benchmarks for the level of rainfall that you receive? If so,		
	Are your gross margins being limited by low income or high variable costs?	
	If low income - refer to diagnostics on income	
	If high variable costs - refer to diagnostics on high variable costs	

3. Are you investing more than $30/t of wheat yield/ha into fertiliser? If so:		Yes/No/Comment
3.1	Do you base fertiliser investment on a combination of long-term average yield and in season potential, or just in-season potential?	
	Context: At times we can become over optimistic with in season potential. Historical yields achieved in similar seasons can also be a useful reference point to add further depth to decisions to apply additional nitrogen.	
3.2	Do you base your investment in phosphorus fertiliser (MAP/DAP) on previous years phosphorus removal or what you have always done historically?	
	Context: It is possible to adjust phosphorus rates down following low yield years to reflect removal. This can be done without detrimental influence on the new season crop yield.	
3.3	Is there a legume that can be grown in your region with consistent levels of profitability and are you including it in your crop rotation?	
3.4	Do you use deep soil nitrogen (N) testing to assist with establishing applied N rates each year?	
3.5	Are you aware of the principle of diminishing marginal benefits with fertiliser applications?	
3.6	Do you stop and ensure that you have a robust business case for applying rates of in-season fertiliser that are greater than long-term average wheat yield x $30?	
3.7	Do you utilise an independent agronomist or perspective to guide fertiliser applications?	
3.8	Do you avoid applying high rates of fertiliser on crops which are yield compromised? (i.e. late sown, waterlogged, high disease pressure, high weed pressure)	
3.9	Is timing of your fertiliser inputs matched with optimising yield?	
3.10	Do you benchmark fertiliser expenditure against high performing businesses?	
4. Are you investing more than $25/t of wheat yield/ha into chemical costs? If so:		Yes/No/Comment
4.1	Are you applying an integrated weed management approach that utilises effective measures other than chemical control? (rotation, windrow burning, seed capture or destruction, crop topping)	
4.2	Do you control weeds in a timely manner when they are small and easier to kill?	
4.3	Do you save expensive chemicals for when they are really needed only?	
4.4	Do you seek an independent perspective on chemical inputs and cost effective weed control strategies?	
4.5	Do you benchmark chemical expenditure against high performing businesses?	
5. Are you falling short of the water use efficiency (WUE) targets for your area? If so:		Yes/No/Comment
5.1	Are you growing varieties that are well adapted to variable seasons?	
5.2	Are you conserving out of season rainfall through effective summer and early autumn weed control?	
5.3	How does your timeliness of sowing compare to the optimum window in your region for each crop type? Does your seeding completion date reflect best practice?	

5.4	Are you regularly monitoring crops to assess progress and weed, pest and disease pressure to make early intervention possible when needed?	
5.5	Are you maximising stubble retention and ground cover over the summer and autumn months?	
5.6	Are you avoiding unnecessary tillage that results in moisture loss?	
5.7	Are you monitoring stored soil moisture each year in your local area, and accounting for the influence this will have on current season crop yield?	
5.8	Is land use matched to land type and high frost risk country managed accordingly?	
6. Are you falling short on the sustainable and achievable stocking rate target for your land class and rainfall? If so:		Yes/No/Comment
6.1	Are you proactively addressing soil pH through liming where soil pH is a limiting factor on nutrient availability? Low pH reduces the availability of a wide range of nutrients and will limit dry matter production.	
6.2	Are you replacing phosphorus (P) removal in your grazing system? One DSE/ha removes one unit of P/year. A 10 DSE/ha stocking rate removes 10 units of P/ha/year.	
6.3	Does your approach to grazing management optimise dry matter production in a cost effective manner? Management of the feedbase has a big influence on annual dry matter production.	
6.4	Pasture density has a significant influence on dry matter production. Is pasture density adequate in your permanent pastures?	
6.5	Does your time of lambing or time of calving best match feed supply and feed demand for your land base?	
6.6	Is there flexibility in your production system to increase or decrease stock numbers to match seasonal conditions?	
7. Are you falling short on lambing percentage in your dual-purpose or prime lamb flock? If so:		Yes/No/Comment
7.1	Are all of your breeding ewes at a suitable condition score at the time of joining? Ideally condition score 3	
7.2	Do you monitor weather and humidity during joining and adjust your joining length if unfavourable conditions, for rams being active during joining, took place?	
7.3	Do you avoid joining ewes in the JASON months i.e. July, August, September, October and November? These months are often correlated with lower fertility.	
7.4	Are your ewes in good health during joining and free from worm burdens, liver fluke and footrot?	
7.5	Do you have a focus on both optimal condition score at joining and twin survival during lambing to ensure that your marking percentage isn't being limited due to conception rates or lamb survival? Often twin lamb survival in the first 24–48 hours is a big contributor to leakage in the system.	
7.6	Are you scanning for singles and multiples and managing multiple bearing ewes according to their specific needs?	
7.7	Are you setting up your multiple bearing ewes for high lamb survival?	

	- building an extra 0.5 of a condition score on twin bearing ewes to optimise birth weight on twin lambs? Increasing birth weight on twin lambs increases their survival	
	- managing twin bearing ewes in smaller mob sizes during lambing? Smaller mob sizes reduces the number of lambs being born on any given day and reduces mismothering	
	- lambing down in paddocks with adequate pasture cover? Ideally 2,000-2,500kg of available dry matter. This increases the bonding opportunity between ewe and lamb in the first few hours	
	- selecting your most sheltered paddocks to lamb in or establishing shelter where possible?	
8. Heavy turn-off weight is a key profit driver. Are you producing finished lambs of killable weights in an average type season? If not:		Yes/No/Comment
8.1	Have you set your annual stocking rate appropriately? Or is overstocking and low allocation of pasture compromising lamb performance and growth rates?	
8.2	Is time of lambing and time of turn-off best matching feed supply and feed demand on your property?	
8.3	Are lambs being weaned onto a suitable quality and quantity diet?	
8.4	Are lambs being finished offered the best available feed on your farm?	
8.5	Are you appropriately managing post grazing residuals in a manner to optimise intake? Shorter pasture length restricts bite size and daily intake, which restricts daily gain.	
8.6	Are you using the best available paternal genetics to optimise growth rates?	
8.7	Is lamb and weaner health being managed appropriately for optimal productivity?	
9. Adult fleece value is a key profit driver. Is your long-term adult fleece value on your breeding ewes less than $40? If so:		Yes/No/Comment
9.1	Are you limited to a composite type ewe or are there Merino ewes that can handle your production environment? Composite ewes will compromise fleece value...but in some locations are required.	
9.2	If you are breeding your own replacement Merino ewes, are you adopting a fleece value mindset as a key genetic selection criteria?	
9.3	Are you using ASBVs for clean fleece weight and fibre diameter when objectively selecting which studs and which rams to breed replacement ewes from?	
9.4	If purchasing replacement ewes, where possible are you aligning yourself with suppliers that have adopted a fleece value mindset?	
9.5	Are you measuring fleece weight and micron at hogget shearing to create a fleece value index on your hoggets? Where practical, this can assist with retaining your highest fleece value ewes when destocking.	
10. Do you feel that your stocking rate has been successfully optimised for your region and property?		Yes/No/Comment
10.1	Has your stocking rate been carefully considered and chosen to prevent it exceeding or falling short of the capability of your land base and management?	

10.2	Does your chosen livestock enterprise best fit the capability of your property? If season length is limiting your ability to produce anything more than a light store lamb perhaps a wool focus flock offers a better fit.	
10.3	Has your time of lambing and turn-off been selected to best match feed supply and feed demand?	
10.4	Have you been able to identify cost effective mechanisms to increase season length within your available pasture base? Grazing management to keep pastures vegetative for longer can assist.	
10.5	Are you managing ewes post-weaning based on condition score and allocating and prioritising feed only to those ewes that need it? Strategic use of supplementary feed with a clear and robust cost benefit outcome is ok. Non-strategic and excessive use of supplementary feeding is indicative of problems in the chosen production model.	
10.6	Are you utilising the ability to build ewe condition score in the spring months as an effective reserve for summer and autumn?	

11.2 Low cost business model

1. Is your machinery investment to income ratio higher than 0.8:1? If so:		Yes/No/Comment
1.1	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	
	Context: It is valuable to recognise that there are two components to this ratio being a.) Investment in plant and equipment and b.) Income generated. While strategic investment in machinery drives this ratio, increasing farm income from your current machinery base will also increase performance against this ratio.	
1.2	Does your investment in machinery match the scale of your cropping enterprise?	
	- Does your machinery capital/ha compare favourably to the benchmark for your region?	
1.3	Do you have any machinery that is rarely used and surplus to your requirements?	
	Context: Machinery that is rarely used has a high holding cost over time in regard to maintenance and depreciation and can compromise your machinery investment to income ratio.	
1.4	Does every piece of machinery that you own perform an essential function for your business?	
	Context: Eliminating non-essential machinery passes can sometimes allow you to be more efficient with your machinery investment.	
1.5	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?	
	Context: Block farming, larger paddock size, and less crop types and varieties rather than more can all help achieve greater utilisation from a given investment into machinery.	
1.6	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 two or three 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?	

	Context: Organisation can make a big difference. A well organised grower does not have to compensate for their lack of organisation by unnecessarily investing in bigger, more expensive machinery.	
1.7	Can you cost effectively increase shift length during peak periods rather than upsize?	
	Context: Increasing shift length can allow for higher work rates to be achieved from a given investment in machinery.	
1.8	Have you simplified your enterprise mix and number of crop types to avoid unnecessary duplication in machinery capital?	
1.9	Can you cost effectively access more land to achieve a greater level of utilisation from your existing machinery?	
1.10	Can you delay your next machinery upgrade and get by comfortably with your existing kit?	
1.11	Do you give adequate planning and thinking to logistics management and how to get more from each existing piece of equipment?	
	Context: Growers that achieve excellent machinery investment to income ratios are often very skilled in observing and analysing operational logistics and avoiding or overcoming bottlenecks.	
1.12	Are you able to observe and review machinery logistics during peak periods, identify bottlenecks and effectively overcome them?	
1.13	Is optimising machinery utilisation one of your key goals?	
	Context: Achieving excellence in machinery utilisation doesn't happen by accident. It has to be goal driven and continually refined through experience.	
2. Are you investing more than 30% of income on TPML costs? If so:		Yes/No/Comment
2.1	Is over capitalisation in machinery or low machinery utilisation driving part of this? If so please refer to section above on machinery utilisation.	
2.2	Are you getting strong levels of labour productivity from your team through:	
	- simple production systems that are easy to repeat and scale up	
	- specialisation rather than unneccesary diversification	
	- continuously prioritising time to important tasks	
	- robust induction and training of new team members	
	- robust leadership and people management	
	- organising today what will be needed to make tomorrow productive?	
2.3	Are you continuously building capacity within your team through:	
	- delegating appropriate responsibility to allow your team to grow and improve	
	-providing suitable training and professional development opportunities	
	- proactively managing daily and weekly workplans to ensure task prioritisation is right	
	- understanding what motivates and encourages discretionary effort across your team?	
2.4	Are you internalising operational activities when it is more cost effective to do so? (rather than using contractors)	

2.5	Are you externalising operational activities when it is more cost effective to do so? (rather than doing it yourself if this has a higher cost)	
3. Is your income/FTE less than $600,000? If so:		Yes/No/Comment
3.1	Are you optimising the income lever in both your cropping and livestock enterprise to prevent falling short on income targets for your available rainfall? Optimising the income pie is an important foundation stone.	
3.2	Is simplicity an important component of your business model and enterprise mix? It becomes more difficult to hit peak labour productivity as complexity increases.	
3.3	Have you developed simple, scalable, and repeatable systems within your business?	
3.4	Is property and machinery infrastructure set up for high labour productivity?	
3.5	Do you have clear roles and responsibilities for all team members?	
4. Does your business fall short of the optimal labour productivity target of managing 8,000 sheep DSEs/labour unit?		Yes/No/Comment
4.1	Are you regularly exploring if there are ways to increase operational scale cost effectively?	
4.2	Are you focusing your efforts on one or two livestock enterprises that best suit your management and land classes? Specialists are generally more profitable in the long-term and focusing on one or two livestock enterprises avoids unnecessarily operating four of five different livestock enterprises that are sub scale and have competing demands on available resources.	
4.3	Is the current standard of property infrastructure making it easy to manage the property and flock in an efficient manner?	
4.4	Are you reinvesting into well considered infrastructure and/or technology on an ongoing basis that will save labour?	
4.5	Does your property layout promote achieving peak labour productivity? It is difficult to achieve peak labour productivity targets with small, spread out blocks.	
4.6	Do you have a manufacturing mindset in regard to animal treatments and handling? How can we achieve more each time we handle stock to avoid the need to re-muster and re-handle?	
4.7	Are you avoiding over complicating your production model with ‘make work’ projects that aren’t actually productive in terms of adding genuine value to your bottom line?	
4.8	Are you efficient in your patterns of work?	

12 Calculate your own key indicators

12.1 Profit as a percentage of income

		Example	Your business
Total income	A	$1,000,000	
Total variable costs – livestock and crop	B	$400,000	
Gross margin	A – B = **C**	$600,000	
Total overheads	D	$100,000	
Operating surplus	C – D = **E**	$500,000	
Lease	F	$80,000	
Earnings before interest, tax, earnings and amortisation (EBITDA)	E – F = **G**	$420,000	
Depreciation	H	$65,000	
Total financing costs	I	$50,000	
Net profit before imputed labour	G – H – I = **J**	$305,000	
Imputed labour	K	$50,000	
Net profit before tax	J – K = **L**	$255,000	
Profit as % income	(L / A) x 100	25.5%	

12.2 TPML costs as a percentage of income

**Include livestock and crop costs*		Example	Your business
Total* contract work	A	$30,000	
Total* fuel	B	$60,000	
Total* freight	C	$25,000	
Total* plant hire	D	$5,000	
Total* plant repairs and maintenance	E	$45,000	
Depreciation	F	$65,000	
Machinery lease (not hire purchase)	G	$0	
Plant and equipment interest	H	$15,000	
Wages and on-costs	I	$50,000	
Imputed labour	J	$50,000	
Total TPML costs	A + B+ C + D + E + F + G + H + I + J = **K**	$345,000	
Total income	L	$1,000,000	
TPML costs as % income	(K / L) x 100	34.5%	

12.3 Cropping variable costs as a percentage of Income

		Example	Your business
Contract work		$30,000	
Crop selling costs		$10,000	
Crop insurance		$10,000	
Fertiliser		$100,000	
Freight		$25,000	
Fuel		$60,000	
Gypsum and lime		$20,000	
Plant hire		$5,000	
Plant repairs and maintenance		$45,000	
Seed		$15,000	
Sprays		$80,000	
Other non specified		-	
Total variable costs	A	$400,000	
Total income	B	$1,000,000	
Variable costs as % income	(A / B) x 100	40%	

12.4 Livestock variable costs as a percentage of Income

		Example	Your business
Agistment		$11,000	
AI and other artificial breeding costs		-	
Animal health		$8,000	
Contract work		$2,000	
Fodder conservation costs		$4,000	
Freight		$4,000	
Fuel (net of rebate)		$2,000	
Goat mustering and freight costs		-	
Livestock selling expenses		$11,000	
Pasture - fertiliser		$8,000	
Pasture - gypsum and lime		$1,000	
Pasture - seed		$4,000	
Pasture - sprays and chemicals		$5,000	
Repairs and maintenance on machinery		$2,000	
Shearing and crutching		$9,000	
Supplementary feed		$4,000	
Wool selling costs		$4,000	
All other livestock expenses		$1,000	
Total variable costs	A	$80,000	
Total income	B	$200,000	
Variable costs as % income	(A / B) x 100	40%	

13 Useful resources

For those looking to implement these profit drivers, there are some MLA programs available:

Making More From Sheep http://www.makingmorefromsheep.com.au/index.htm
MLA's Southern BusinessEDGE (available in Victoria through RMCG or visit www.mla.com.au/news-and-events/events-and-workshops to find a workshop near you)
More Beef from Pastures http://mbfp.mla.com.au/Home
Pasture Principles (Macquarie Franklin or Rural Directions Pty Ltd)
Profitable Grazing Systems https://www.mla.com.au/pgs

Please speak to your workshop facilitator for more information on these programs.

14 References

Andrew Thompson, Murdoch University, various papers and MLA presentations on maternal productivity in sheep
Doonan B, Lynch J, Sherriff L, Hooper P, Macquarie Franklin, (v1.2 January 2017) Pasture Principles, A practical guide to pasture management
Heath R, (Vol. 14, No1, Autumn Quarter 2017), The Changing Agricultural Workforce, Farm Policy Journal
MLA Southern BusinessEDGE - workshop content
Rural Directions Pty Ltd, (2016), management guideline, produced as part of GRDC project 'The integration of technical data and profit drivers for more informed decisions'

15 Glossary of key terms and acronyms

15.1 Glossary

Chemical cost/t of wheat yield	This is calculated by taking total investment in chemical costs in $/ha across the full cropping program and dividing this number by wheat yield. This provides an indication of how efficiently investments into chemical costs are being leveraged to generate crop yield. The industry target for chemical costs ($/t of wheat yield) is less than $25/t.
Debt to income ratio	This benchmark measures the debt burden for the business and is an important benchmark to monitor. It provides an indication of current debt levels in relation to business income.
EBITDA	Earnings before interest and tax, depreciation and amortisation. EBITDA highlights how the business has performed on a management level. EBITDA should remain positive every year and should be as large as possible, as significant costs are still to be included.
EBIT	Earnings before interest and tax - after all operating costs, but before interest, lease costs and tax bills. Sometimes referred to as operating profit.
Fertiliser cost/t of wheat yield	This is calculated by taking total investment into nitrogen and phosphorus based fertiliser costs in $/ha across the full cropping program and dividing this number by wheat yield. This provides an indication of how efficiently investments into fertiliser costs are being leveraged to generate crop yield. The sustainable industry target in most scenarios is to aim for $30/t or less.
Finance coverage ratio	Finance coverage looks at how well the profits of the business can service the financing costs of a business. This includes the ability of a business to repay annual financing costs, such as interest (machinery, land and working capital), bank charges and land lease payments. It is calculated by dividing the financing costs into the EBIT profit level of the business; the result is how many times the EBIT profit covers the financing charges. A suggested 'safe level' is four (ie. EBIT is four times the financing costs), meaning the financing and lease costs can be comfortably paid with sufficient profits remaining for debt reduction, provisioning for future succession and seasonal or market downturns. A lower finance coverage means there is less working capital to fund the operation of the business.
Full time equivalent (FTE)	1 FTE is equivalent to 38 hours/week, 52 weeks/year, 1,976 hours/year. Data is collected on hours worked by all labour in the business (family and non-family) and then used to calculate total FTEs for the business. One person could work more than one FTE hours.
Gross profit (livestock)	Gross profit = sales – purchases +/- inventory movement.
Income/FTE	Total income divided by total FTEs. FTE calculated based on hours worked not number of people working in the business (as above).
Labour – terminology and cost	Refers to all labour working in the business – both family and non-family labour. An imputed labour cost for family labour who are remunerated via drawings was used, this enabled comparison of different business structures.
Machinery investment to income ratio	This benchmark is a measure of capitalisation and indicates a business's investment in plant and equipment in comparison with total income.

Profit as percent of income	Total profit divided by total income; reported as a percentage. The top 20% target is 30% of profit as a percentage of income.
ROAM	Return on assets managed (ROAM) This provides an indication of the return being leveraged from the total assets under management in the business. This takes into consideration owned assets, assets being financed and leased and sharefarmed land. It does not take into account the cost of accessing this capital. ROAM is calculated as EBIT divided by total assets under management.
ROE	Return on equity (ROE) ROE considers the return generated from the owners' capital invested in the business. This benchmark uses the net worth figure. This benchmark accounts for all business costs, including interest and leasing and, as such, is a reflection of how well the business is leveraging owners' funds. ROE is calculated as net profit before tax divided by net worth.
TPML	Total plant, machinery and labour (TPML) is used to compare businesses that employ an own and operate model with a contractor model for their machinery and labour. This benchmark is also useful to measure how well a mixed farming producer is utilising their investments into machinery and labour. TPML costs include contract work, fuel, freight, plant hire, plant R&M, depreciation, machinery lease (not hire purchase), plant & equipment interest, wages & on-costs and imputed labour. These costs are summed then divided by total income.
Variable costs	Variable costs, also referred to as input costs, are costs that alter with output and scale of operation. Livestock variable costs include: • agistment • all and other artificial breeding costs • animal health • contract work • crop selling and storage costs • crop insurance • fertiliser • fodder conservation costs • freight • fuel (net of rebate) • goat mustering and freight costs • gypsum and lime • hire of plant • livestock selling expenses • repairs and maintenance on machinery • shearing and crutching • sprays and chemicals • supplementary feed • wool selling costs • all other livestock expenses. Crop variable costs include: • contract work • crop selling and storage expenses • fertiliser • freight • fuel (net of rebate) • gypsum and lime • hire of plant • repairs and maintenance of machinery • seed and seed cleaning • sprays and chemicals • all other crop expenses.

15.2 Common acronyms

ASBV	Australian sheep breeding values
ASX	Australian Stock Exchange
CWT	Carcase weight
DM	Dry matter
DSE	Dry sheep equivalents
EBIT	Earnings before interest, tax
EBITDA	Earnings before interest, tax, earnings and amortisation
F1	First cross ewe
FTE	Full time equivalent
GRDC	Grains Research and Development Corporation
ha	Hectare
LWT	Live weight
MAP/DAP	Monoammonium phosphate (MAP) and diammonium phosphate (DAP)
ML	Megalitre
MLA	Meat & Livestock Australia
R&M	Repairs and maintenance on machinery
ROAM	Return on assets managed
ROE	Return on equity
TPML	Total plant machinery and labour
WUE	Water use efficiency

On farm actions

On farm actions

On farm actions