

# FARM TO PROFIT FARM BUSINESS UPDATE



**Swan Hill** – Tuesday 27th July, 2021  
*Swan Hill Town Hall*

**Horsham** – Wednesday 28th July 2021  
*Horsham Town Hall*

**#GRDCUpdates**



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# GRDC Farm Business Update SWAN HILL/HORSHAM



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# GRDC Farm Business Update SWAN HILL/HORSHAM



## Program

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- 9.30 am **Announcements**
- 9.35 am **GRDC welcome**
- 9.40 am **Competition for farming land - Analysing the viability in a tight market** *Chris Lawlor,  
Compass Agribusiness*
- 10.20 am **Diversifying income streams - more eggs in more baskets** *Jenny Moore,  
The Wimmera Grain Store*
- 11.00 am **Morning tea**
- 11.30 am **Machinery investment – what works for my business?** *Ben White,  
The Kondinin Group*
- 12.05 pm **Technology investment - Early adoper or late to the party?** *Adrian Roles,  
AgTrak*
- 12.40 pm **Extended Q & A – With Ben White and Adrian Roles**
- 12.55 pm **Lunch**
- 1.55 pm **Oaten Hay and the financial risk management considerations** *Ben Hogan,  
ORM Consulting & Communications*
- 2.30 pm **Paying off debt and managing interest rate exposure** *Clinton Peake,  
Pro-Advice*
- 3.05 pm **Wrap up and evaluation**
- 3.10 pm **Close**



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[http://pir.sa.gov.au/research/services/molecular\\_diagnostics/predicta\\_b](http://pir.sa.gov.au/research/services/molecular_diagnostics/predicta_b)

#### Potential high-risk paddocks:

- Bare patches, uneven growth, white heads in previous crop
- Paddocks with unexplained poor yield from the previous year
- High frequency of root lesion nematode-susceptible crops, such as chickpeas
- Intolerant cereal varieties grown on stored moisture
- Newly purchased or leased land
- Cereals on cereals
- Cereal following grassy pastures
- Durum crops (crown rot)

#### There are PREDICTA® B tests for most of the soil-borne diseases of cereals and some pulse crops:

- Crown rot (cereals)
- Rhizoctonia root rot
- Take-all (including oat strain)
- Root lesion nematodes
- Cereal cyst nematode
- Stem nematode
- Blackspot (field peas)
- Yellow leaf spot
- Common root rot
- Pythium clade f
- Charcoal rot
- Ascochyta blight of chickpea
- White grain disorder
- Sclerotinia stem rot

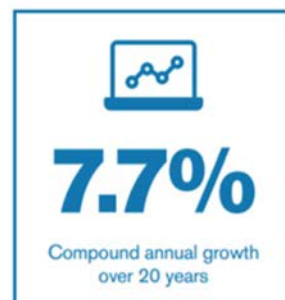
# Competition for farming land - Analysing the viability in a tight market

Chris Lawlor.

Compass Agribusiness.

## Key Messages:

- ◆ Think 10 and 20 years ahead, integrating family and business goals.
- ◆ Analyse current equity levels realistically and explore other equity sources.
- ◆ Your competition is likely to be factoring capital gain into their analysis.
- ◆ Use Present Value (PV), Future Value (FV), and Compound Annual Growth Rate (CAGR) to analyse the past and give confidence to your future calculations.

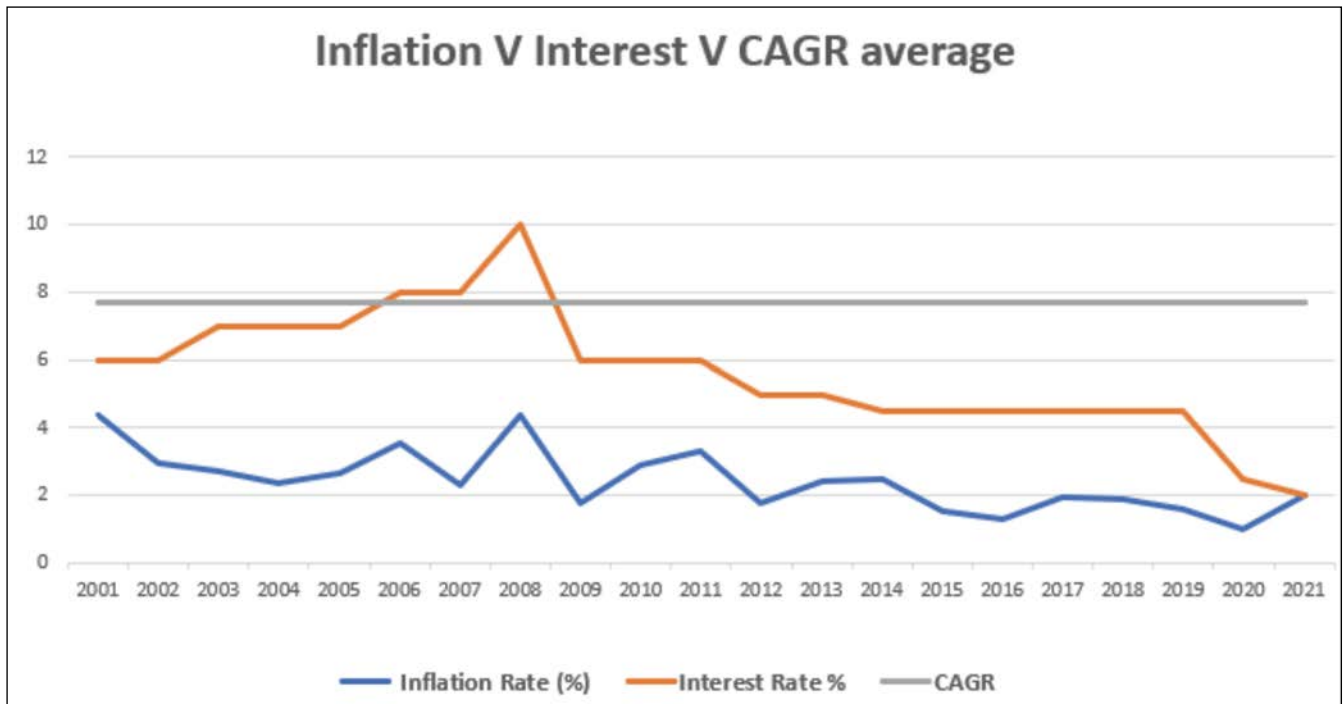


## Introduction

The purpose of this presentation is to demonstrate how financial analysis and forecasts in conjunction with the following introduced historical trend calculations can give confidence to expansion decisions.

Farming, whether it be cropping, dairy, sheep, beef, or horticulture, is a tough business. No other businesses are exposed to the variations in weather and commodity prices that we are. Compared to other city-based service businesses, farming is very capital intensive. Anyone who has purchased a neighbouring farm in the last 20 years knows the benefits of the 7.7% Compound Annual Growth Rate (CAGR) Year on year (YOY) which Northwest Victoria has seen (Source: Rural Bank Land Values report 2021).





**Figure 1:** Graph of Inflation, interest rate and compound annual growth 2001-2021.

Source: Rural Bank Report Land Values 2021 and <https://www.infochoice.com.au/rate-watch/history-of-interest-rate-movements/>

Droughts and fluctuating commodity prices make it near impossible to achieve a 7% year on year, return on assets (ROA), hence the question must be asked, what percentage of our business is farming and what is investment in real estate?

This has led to the term ‘Landbanking’, and since the covid pandemic, agriculture is leading the way as a long-term, and safer investment option than many service-based businesses, and the capital gain is now a factor in investment decisions.

**Table 1.** Compound interest equation using the historic 20-year Compound Annual Growth Rate (CAGR) of 7.7% and an estimated value of \$1700/ha in 2001, gives today's value of \$7,500. FV= Future Value, PV=Present Value, r= Compound Annual Growth Rate.

FV = PV (1+r) <sup>n</sup>		
Year Purchased	Difference (n)	Value Now
2001	20	2021
Value/ha	CAGR (r)	Value/ha
\$ 1,700	7.7%	\$ 7,495
EBIT/ha		EBIT/ha
120		350
ROA		ROA
7%		5%

Wealth creation in farming is a combination of generating operating profit and increasing land asset value. During the previous 20 years wealth creation has been heavily weighted in favour of increasing asset value i.e. real estate appreciation. Anyone who has purchased the neighbour’s land or expanded during this period, never in their wildest dreams anticipated the extraordinary growth to continue. The same applies now with a CAGR so far above the longer-term rate of inflation.





These calculations combine with analysis of structure, business risk profile, equity, and operating returns to assist decision-making on whether to proceed with expansion. Ideally much of this work can be done before opportunity knocks.

## Business Structure

Good farm management into the 21st century is based on solid foundations.

These foundations encompass:

- What entity structure you operate through and how assets are owned.
- Challenging existing structures to ensure that they meet the objectives of family members and the business.
- Carefully considering what entity new assets should be acquired through to ensure that family objectives are met and both current and long-term tax-effectiveness is achieved.
- Ensuring asset protection is in place for you and your family.

Business structures may need to change over time considering legislation, family circumstances, the degree of business growth and the external business operating environment. However, the cost of change is often significant, and the ideal is choosing a structure that will suit for a long period of time (subject to regular review).

Sound risk management and succession plans are also vital for a viable farming business operation.

## Benchmarking and Risk

In conjunction with financial ratios, historical benchmarking can show both the risks and their regularity of occurrence. Very few countries in the world are subject to the irregular and prolonged droughts Australia is subject to. Other countries, such as New Zealand, can rely on good rainfall at some stage of the season to grow sufficient fodder to average across the year. Many parts of Australia need to average cashflow over a 10-year period to minimise risk.

## Equity and Sources

A common source of equity growth is achieved by revaluing existing assets. Have the values your bank is using kept up with the market?

An example is a farmer refinancing a business with approximately ten million dollars of spread debt incurring an average of 4.5% interest with a perceived asset value of nineteen million dollars in security value. On revaluation asset value increases to twenty-one and a half million dollars and consolidates all debt at 3% after equity increased from 47% to 53%.

Other internal sources of equity should also be explored, for example successors involved or interested in becoming involved contributing capital from outside the farm operations. Existing staff may be an option, with 'skin in the game' they won't be leaving you alone to do the 80-hour weeks when busy. As farming businesses expand, the loss of key staff can pose a serious risk to the profitability of an operation.

An example from a dairying client where 80ha became available to lease next door, the herd manager was able to buy the extra 200 cows required, lease back to the owner and was instantly more engaged and committed.

With the historic Compound Annual Growth Rate (CAGR), present value (PV) and future values (FV) analysed for the last 20 years, and the structure, equity and finances of the proposed investment analysis completed, it is time for some future analysis and extrapolation of current trends.



**Table 2.** Future value equation using 20-year compound annual growth rate.

$FV = PV (1+r)^n$		
<b>Value Now</b>	<b>Difference (n)</b>	<b>Future Value</b>
2021	20	2041
Value/ha	<b>CAGR (r)</b>	Value/ha
\$ 7,500	2%	\$ 11,145
EBIT/ha		EBIT/ha
350		\$ 520
ROA		ROA
5%		5%

The graphic above calculates a future value using the current Inflation rate of 2% as the anticipated CAGR, over 20 years. The land value appreciates 50% from \$7,500/ha to \$11,145/ha. If we use the previous 20yr CAGR of 7.7% the \$7,500/ha appreciates to \$33,000/ha or a whopping 340%. Of course, your equity, borrowings, and interest rates are all important factors. But remember your actual core borrowings stay the same, provided your operating surplus meets debt servicing requirements, which will be influenced by the rate of interest charged on the debt.

### Assessing Equity impacts from land acquisition

**Table 3.** Demonstrated equity impact from land acquisition funded by debt.

Land Value (\$/ha)	7,500	7,500	7,500	7,500
Existing Farm (ha)	1,000	1,000	1,000	1,000
Expansion (ha)	500	750	1,000	1,250
Size (ha)	1,500	1,750	2,000	2,250
Equity before expansion	90%	90%	90%	90%
Equity after expansion	60%	51%	45%	40%
Debt before expansion	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000
Debt after expansion	\$ 4,500,000	\$ 6,375,000	\$ 8,250,000	\$ 10,125,000
Equity (\$)	\$ 6,750,000	\$ 6,750,000	\$ 6,750,000	\$ 6,750,000
Land value before acquisition	\$ 7,500,000	\$ 7,500,000	\$ 7,500,000	\$ 7,500,000
Land value after acquisition	\$ 11,250,000	\$ 13,125,000	\$ 15,000,000	\$ 16,875,000

### Leasing

Leasing is quite different to purchasing, and generally has less risk, although 3 years of drought can mean high costs and minimal income. When leasing to run livestock, profit is generally used to pay off additional stock. Other motivations for leasing are;

- A 'lease to own' arrangement or if the property was to sell, a first right to buy at valuation.
- Lack of equity to buy but drive to grow scale.
- Offspring working at home and a desire to grow, sometimes in conjunction with an older neighbour wanting to 'step back'

Leasing can certainly lead to future ownership, but in the last 20 years the owners have done very well with their land appreciating at a return they were unlikely to replicate operating their farm.

Leasing is analysed in depth in this GRDC article;

[www.grdc.com.au/FBM-LeasingShareFarmingLand](http://www.grdc.com.au/FBM-LeasingShareFarmingLand)



## Why working on this could be great for your farming business

- Many successful businesses will go through this process many times before the right one succeeds, the act of going through the process will make you more prepared and build confidence.
- This can be enormously motivating and a good stimulus to get the next generation of farmers involved.
- When opportunity knocks, it often does not wait.

## Self-evaluation

Do you regularly monitor your own business equity? \_\_\_\_\_

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Are there internal or external equity sources that may be of mutual benefit? \_\_\_\_\_

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How has your business risk profile changed over the last 20 years? \_\_\_\_\_

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## Actions and recommended follow ups

- Discuss 10–20-year goals with your current and possible future stakeholders.
- Correlate your current equity with your current interest rate, it may be time for your bank manager to buy lunch.
- If you are interested in expanding, get ready as someone else may be quicker than you to the next opportunity.

**Our First Action** \_\_\_\_\_

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**Our Second Action** \_\_\_\_\_

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## Risk based Questions

What happens if interest rates go to 10% again?

Interest rate increases are used by the Reserve Bank to manage inflation. If interest rates do jump this is usually in response to higher rates of inflation and as history has shown land values are likely to increase as a result.

Is it safe to farm with less than 50% equity?

Many farms do, the banks risk analysis is there for a reason and since businesses running at less than 50% equity are more likely to fail or be pushed over their limits during a drought period. You are likely be paying 1.5% more interest due to this risk, so it is optimal and more comfortable to operate above 50% equity.



Capital Gain is finished, you're dreaming if you think we will keep getting 7%?

Every time someone has expanded over the last 20 years, they have thought exactly that, it is certainly risky to budget at that level, arguably they may still increase at the level of normal inflation.

We are farmers not land bankers, why do we need to know this?

The reason we are analysing viability in a tight market is because we are competing with land bankers, not just city based, but farmers with little or no debt investing in low returning land so that they are paying interest instead of tax, they are playing the 'long game' and believe historical CAGR will continue albeit at possibly lower levels.

## References

Rural Bank Farm Values NorthWest Victoria <https://www.ruralbank.com.au/siteassets/knowledgeandinsights/publications/farmlandvalues/victoria/afv-vic-2020.pdf>

Interest rate movements

<https://www.infochoice.com.au/rate-watch/history-of-interest-rate-movements/>

Australia Inflation rate history

Australia Historical Inflation Rates - 1948 to 2021 | Inflation Rate and Consumer Price Index (rateinflation.com)

Please read this previous GRDC presentation notes for more detail.

<https://grdc.com.au/resources-and-publications/grdc-update-papers/tab-content/grdc-update-papers/2014/10/business-structures-for-a-successful-family-farm>



### More about Chris . . .

*Chris Lawlor is an Asset Manager and Agribusiness Specialist for Compass agri based in Melbourne. He oversees three large dairy farms for a Canadian Superfund in Victoria and is involved in four Tasmanian farms. He has recently completed an MBA and has published articles on Intergenerational Business.*

*He is a 4th generation NZ farmer with an equity manager running a 750-cow self-contained dairy at the bottom of the South Island in New Zealand. In 1972 his father purchased his first property with \$15,000, borrowing the other \$135,000. During the next 50 years over 20 neighbouring properties were purchased or leased. He has a passion for all forms of agriculture, is optimistic about the future of all commodity prices. Change is speeding up across all business and the variations in ownership structures over the last 20 years are likely to continue, combining this with a younger generation of farmers who are becoming very tech savvy and embracing changes in cultivars, species and farming practices means long term planning is very important.*

**Contact details:** Website: <https://www.compassagri.com/>

Email: [chris@compassagri.com](mailto:chris@compassagri.com)

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# Diversifying income streams – more eggs in more baskets

*Jenny Moore.*

*The Wimmera Grain Store.*

## Key Messages:

- ◆ There are opportunities to grow your agribusiness, create additional revenue streams other than selling your produce as a commodity.
- ◆ Potential of up to \$10,000 gross margin per metric tonne depending on product design.
- ◆ Look for value add and ag tech case studies for inspiration.
- ◆ There are resources to help you research/embark on this journey.



## Introduction

At The Wimmera Grain Store (WGS) we have taken the humble chickpea, packed it into a shelf ready retail pack, milled it into a flour and turned it into a range of plant/pulse-based snacks.

- *Established in 2011* The Wimmera Grain Store supplies a variety of chickpeas, lentils and faba beans into Australian based food manufacturers, re-packers, food services and shops. As our knowledge of the supply chain has grown, so has our interest in adding value to what we grow. In addition to being able to offer our produce as a commodity, we have also been developing a range of shelf ready products, including pulse/plant-based snack foods.





Would you like to grow your business without having to buy more land?

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If you answered yes to both to the above questions – then start your research.

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### We want to work on this in our business, what should we do next?

*If you have an add Value or ag tech Idea . . .*

- Research, research, research – business case studies, market trends, what problems could your idea solve? How big a problem is it?
- Test your idea. Test the size of the problem. Interview potential customers. Listen to their feedback! Find the right market and sales/distribution channel that fits your product idea.
- Get help early – Get in touch with companies such as Farmers to Founders, Wimmera Development Association Seeds of Growth, Food Innovation Australia, Beanstalk Ag tech, Badalya. Apply and get into their programs.



Our First Action \_\_\_\_\_

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Our Second Action \_\_\_\_\_

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Want to learn more, here are some suggestions;

- <https://www.farmers2founders.com/>
- [www.wda.org.au](http://www.wda.org.au)
- <https://www.fial.com.au/>
- <https://www.beanstalkagtech.com>
- [www.badalya.com](http://www.badalya.com)

References and/or acknowledgements;

*Many thanks.*

- Farmers to Founder
- Wimmera Development Association/Seeds of Growth Program
- Food Innovation Australia
- GRDC





### More about Jenny . . .

*Jenny Moore is the director of The Wimmera Grain Store (WGS). Jenny's family have been farming for 90 years and growing chickpeas and lentils for 30 years at Rupanyup, Victoria. WGS specialises in supplying Australian grown pulses, chickpeas, lentils and faba beans as a whole grain, split, kibble or speciality flour, to food manufactures, re packers and food service businesses helping them fill their supply chain needs. WGS has also been developing a range of shelf ready products, including pulse/plant-based snack food helping healthy minded consumers satisfy in between meal cravings.*

**Contact details:** Correspondence address: 4 Mortimore St Bentleigh 3204  
Processing plant address: 1 Edward Street, Rupanyup 3388  
Website: [www.wimmeragrainstore.com.au](http://www.wimmeragrainstore.com.au)









# TOP 10 TIPS

## FOR REDUCING SPRAY DRIFT

01

**Choose all products in the tank mix carefully,** which includes the choice of active ingredient, the formulation type and the adjuvant used.

02

**Understand** how product uptake and translocation may impact on coverage requirements for the target. Read the label and technical literature for guidance on spray quality, buffer (no-spray) zones and wind speed requirements.

03

**Select the coarsest** spray quality that will provide an acceptable level of control. Be prepared to increase application volumes when coarser spray qualities are used, or when the delta T value approaches 10 to 12. Use water-sensitive paper and the Snapcard app to assess the impact of coarser spray qualities on coverage at the target.

04

**Always expect** that surface temperature inversions will form later in the day, as sunset approaches, and that they are likely to persist overnight and beyond sunrise on many occasions. If the spray operator cannot determine that an inversion is not present, spraying should NOT occur.

05

**Use weather forecasting** information to plan the application. BoM meteograms and forecasting websites can provide information on likely wind speed and direction for 5 to 7 days in advance of the intended day of spraying. Indications of the likely presence of a hazardous surface inversion include: variation between maximum and minimum daily temperatures are greater than 5°C, delta T values are below 2 and low overnight wind speeds (less than 11km/h).

06

**Only start spraying** after the sun has risen more than 20 degrees above the horizon and the wind speed has been above 4 to 5km/h for more than 20 to 30 minutes, with a clear direction that is away from adjacent sensitive areas.

07

**Higher booms increase drift.** Set the boom height to achieve double overlap of the spray pattern, with a 110-degree nozzle using a 50cm nozzle spacing (this is 50cm above the top of the stubble or crop canopy). Boom height and stability are critical. Use height control systems for wider booms or reduce the spraying speed to maintain boom height. An increase in boom height from 50 to 70cm above the target can increase drift fourfold.

08

**Avoid high spraying speeds,** particularly when ground cover is minimal. Spraying speeds more than 16 to 18km/h with trailing rigs and more than 20 to 22km/h with self-propelled sprayers greatly increase losses due to effects at the nozzle and the aerodynamics of the machine.

09

**Be prepared** to leave unsprayed buffers when the label requires, or when the wind direction is towards sensitive areas. Always refer to the spray drift restraints on the product label.

10

**Continually monitor** the conditions at the site of application. Where wind direction is a concern move operations to another paddock. Always stop spraying if the weather conditions become unfavourable. Always record the date, start and finish times, wind direction and speed, temperature and relative humidity, product(s) and rate(s), nozzle details and spray system pressure for every tank load. Plus any additional record keeping requirements according to the label.



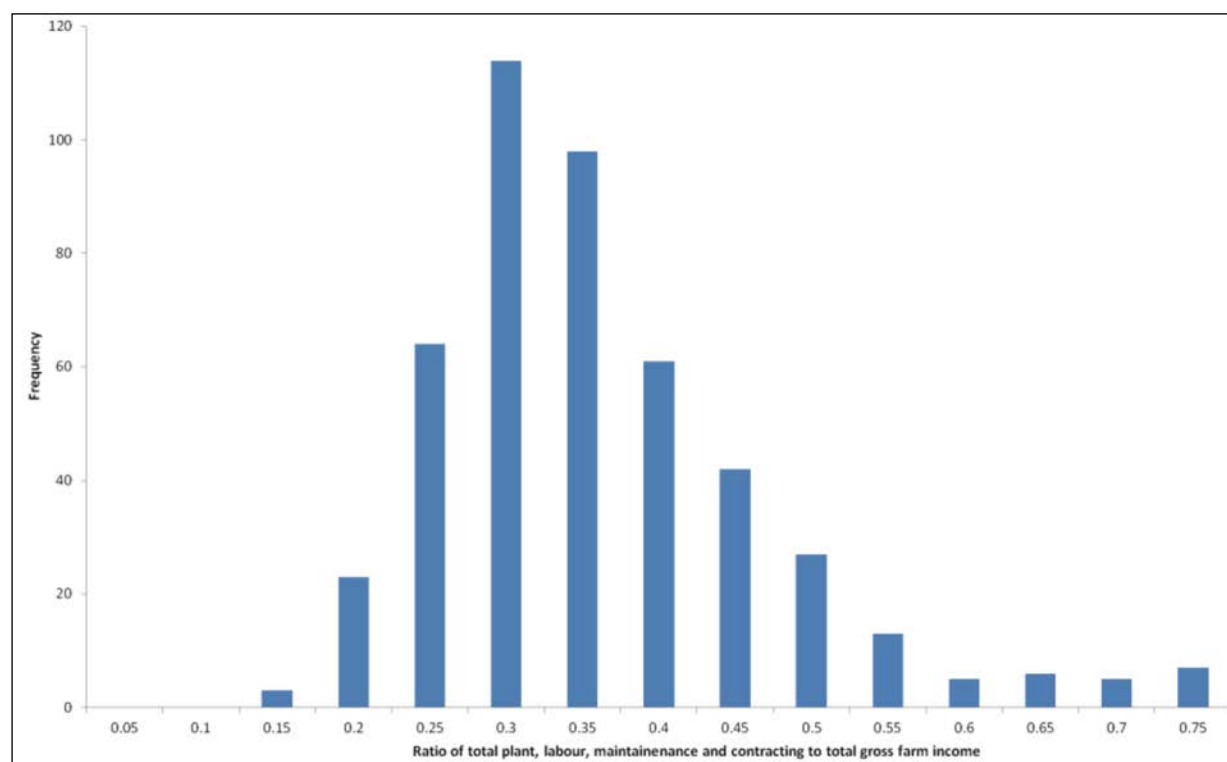
# Machinery investment: What works for your business?

Ben White

Kondinin Group

## Key Messages:

- ◆ Every business is different, but benchmarks can help to provide perspective.
- ◆ Machinery investment levels are generally commensurate with cropping turnover.
- ◆ Ratios of seeding / spraying / harvesting machinery investment vary geographically.
- ◆ Machinery plant investment also needs to factor repairs and maintenance, skilled labour inputs and contracting relative to total cropping income.
- ◆ The national average benchmark for TPLM+C : Cropping income = 0.34



**Figure 1.** National frequency of ratios of total plant, labour, maintenance and contracting (TPLM+C) to total gross farm income in Australian cropping enterprises (National: n=411)

## Introduction

Working with Cussons Media, Farmanco, Agripath and Pinion Advisory, Kondinin Group collated machinery ownership data from more than 400 farmers across Australia to gauge machinery investment levels relative to business turnover.

A booklet produced for GRDC contains thirty case studies to illustrate ownership models and change-over triggers as well as survey data for specific to cropping Agro-Ecological Zones (AEZ's).



## Overview

Detailed financial figures and data from 480 farmers nationally was probed to provide a detailed analysis. This was combined with case studies of 30 farmers spread nationally and representative of the spectrum of data collected. Points to note include;

- Average cropping income by GRDC region varied from around \$1.4m in the South to \$2.4m in the West with the Northern region coming in at around \$1.6m.
- Previous studies of machinery investment levels had not included farm labour, contracting, repairs and maintenance.

Including these figures ensures the data are not skewed by investment in additional repairs and maintenance for older equipment, or additional skilled labour to operate lower cost and lower capacity equipment.

- A standard depreciation rate of 10 per cent was applied across equipment unless the fleet of equipment was very new. While this can vary over the lifetime of the machine, across the thousands of machines in the survey data, this depreciation figure is around the average according to farm management consultants.

When making machinery investment decisions, evaluate the financial impact the investment will have. For technology investments, work on the return on capital for the technology. Section control is a good example of where technology can pay for itself depending on individual circumstances.

For other equipment, maintain knowledge of current market values and utilise the known ratio of 0.34 investment to income to determine if your farm is undercapitalised or overcapitalised with farm machinery.

My follow up questions for the speaker;

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## Why working on this could be great for your farming business

- Machinery investment decisions are usually big decisions which take into account not just the financial implications, but also the maintenance, service and backup as well as human capital costs to the business.
- Comparing farm investments in machinery to other farms in the area can provide a perspective on relative machinery outlay and provide guidance for benchmark investment levels.
- Reading case studies of the approach other farmers take can be useful in making decisions.



## Self-evaluation

Are you comfortable with your current levels of investment in machinery? Y / N

Why? / Why not? \_\_\_\_\_

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Do you know your TPLM+C and average long term income figures? Y / N

- If yes, where do you sit relative to the national average investment ratio of 0.34?

**Below**

**Similar to**

**Above**

- If no, and you want to work on this in your business, calculate your TPLM+C and see how it compares to the benchmark.

What machinery or technology can we invest in next to improve our business?

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## We want to work on this in our business, what should we do next?

Answer the questions:

- What is the current market value of your machinery fleet?
- What is your total long term cropping income?
- Where do you sit relative to the 0.34 Investment : Income ratio?
- Is there technology available that will provide a financial benefit to your farm business?



Our First Action \_\_\_\_\_

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Our Second Action \_\_\_\_\_

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### Want to learn more, here are some suggestions;

- Keep an eye out for the GRDC booklet on farm machinery investment that includes 30 case studies from across Australia.

### Acknowledgements

Thanks to Primary Business, Farmanco, Agripath and Pinion advisory and Cussons media for their assistance. In addition to the 30 farmers who were interviewed, we would like to thank the 450 farmers who provided data for the study.

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## More about Ben . . .

*Ben is an agricultural engineer, Kondinin Group's research manager and editor of Farming Ahead magazine and, as an independent consultant, is a member of the GRDC stored grain extension team.*

*Based in Western Australia, Ben comes from a family farm in the New England region of northern NSW. Since completing his engineering studies at the University of Southern Queensland, Toowoomba, Ben has worked predominantly for the Kondinin Group for over 20-years.*

*Ben has extensive experience in delivery of research and has expertise in the areas of farm machinery investment, sheep handling and livestock infrastructure, farming technology and communications, grain storage, precision farming, engine technology, harvesting, seeding and spraying equipment.*

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# Ag Technology Investment - early adopter or late to the party?

*Adrian Roles.*

*AgTrak.*

## Key Messages:

- ◆ When making an investment in agricultural technology (ag tech) it is important that an analysis of investment be made. This analysis is best done in a whole-farm context as you would with any other agricultural investment.
- ◆ Analysis of ag tech investments should include the following considerations: environmental, professional satisfaction, social, obsolescence time frame, compatibility to existing and future ag tech, productivity, efficiency gains and economic gains.
- ◆ You should also consider investment in ag tech as a potential risk management tool in your farming business.
- ◆ It is also important to conduct your own research and analysis of ag tech products and services as information from ag tech providers tends to be inflated due to the use of generic and simplified economic analysis.



## Introduction

Farmers are frequently challenged in being able to make informed decisions on when and what to invest in, when it comes to ag tech. This is because the profitability of ag tech will vary, not only farmer to farmer but also from paddock to paddock. The interoperability of a new ag tech purchase and the future obsolescence of any ag tech investment can also be difficult to determine. This can make assessing ag tech investments difficult, but with a little thought and work a farmer can determine the return and risk of investing in ag tech.

## Content

Due to the difficulty in determining an accurate return on investment, it is important that farmers go through a proper decision-making process when considering investing in any new ag tech for their farming businesses.



The first question a farmer should ask themselves before investing in ag tech is, have I achieved a suitable level of return from my existing investments? This could be, have I maximised my returns on what I am already doing? Or could I improve on my current level of return, for example can I improve my agronomy? Is my operational timing good? Is my existing equipment and tech being used to its full capability? If the answer to these is yes, then a farmer may wish to look at further investments, possibly in ag tech.

When considering investing in ag tech a farmer also needs to ask themselves, does this ag tech support my goals and objectives for my business? If a farmer has not outlined the goals and objectives, they expect to achieve, it is important that they develop these before investing. An example could be, I have the goal of land stewardship through sustainable land practices to ensure future profitability for my farm business or I want to reduce summer weed escapes and increase spraying efficiencies. Whatever your goals or objectives are, if you think there is a potential ag tech investment that supports them, it is important to follow a logical decision-making process.

The key to making the most informed investment decision in ag tech is to use a logical process. Such as the seven-step process outlined below.

- 1) Identify the problem or opportunity.
- 2) Identify the alternative solutions.
- 3) Collect all data and information.
- 4) Analyse the alternatives and determine a decision.
- 5) Implement the decision.
- 6) Monitor the results.
- 7) Accept the responsibility for making the decision.

It is important to note that when evaluating ag tech for possible investment, steps 3 and 4 in the decision-making process can be the most challenging due to lack of independent and trustworthy sources of information and data. It is important to understand that most return-on-investment information on ag tech from agricultural tech providers is derived from generic simplified economic modelling.

Below are other non-economic considerations that a farmer may want to consider as part of step 3 and 4.

1. Interoperability: It is also important to consider how any new ag tech investment will fit into existing machinery operations, hardware, and software.
2. Obsolescence: Most farmers realise that ag tech is changing at a rapid pace It is important to understand and plan for any ag tech investment becoming obsolete. By not planning for this a farmer may risk losing valuable time, data and encounter unforeseen expenses.
3. Risk management: Ag tech has the potential to be used for risk management. The main five risks that farmers face: production risk, price/market risk, legal risk, personal risk, and financial risk.

People: Is it an investment that will be professionally satisfying and rewarding to the investee? What is the learning curve with the new technology? A farmer's time is valuable, it can be costly to learn new ag tech and implement successfully.

Automated vs data intensive technology: Automated ag technologies, like auto section control or auto steer, if it meets a need can potentially have near immediate ROI and can be readily used by most farmers. Data intensive technologies, such as NDVI and yield data, require additional skills to be used effectively, resulting in hard to estimate the ROI.

Environmental and social: Ag tech may also have environmental and social benefits that are hard to quantify but worth considering.

When assessing ag tech investment, wide variations in outcomes are possible. This is due to many farmers and their farm businesses having different goals and objectives. The resulting return on ag tech investment by its nature are farmer specific, farm specific and paddock specific. For example, an ag tech investment may be economically profitable but may not align with business goals or be feasible to the



farmer, due to any of the above-mentioned considerations. Therefore, Investment in ag tech may require thinking deeper than a direct economic analysis of the ag tech investment to maximise the full benefits that an ag tech investment may offer.

### Why working on this could be great for your farming business

- Potential increase in profitability.
- Improved management decisions.
- Professional satisfaction.
- Potential increased ability to manage risk.

### Self-evaluation

Before investing in ag tech, have I fully utilised existing production and ag tech opportunities? \_\_\_\_\_

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Do you have clearly defined goals you want to achieve by investing in ag tech? What are they? \_\_\_\_\_

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Do I, or am I willing to invest or employ someone with skills and knowledge to manage and implement my ag tech investments?

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## We want to work on this in our business, what should we do next?

- Review existing ag tech investments, align any new investment to your goals.
- Conduct an appropriate decision-making framework and analyse the ag tech for each unique circumstance and farm attribute.
- Use correct analysis techniques for ag tech investing such as net present value, internal rate of return, partial budgeting, or whole farm planning.

## Want to learn more, here are some suggestions.

- Extension Aus Precision Agricultural community of practice.  
<https://extensionaus.com.au/precisionag/home>
- The economics of precision agriculture, GRDC Project code: RDP00013,  
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Our First Action \_\_\_\_\_

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Our Second Action \_\_\_\_\_

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### More about Adrian . . .

*Adrian is a mixed farmer from Young NSW, growing canola, winter cereals, pasture production and merino sheep. Adrian has implemented precision agriculture on his own farm, while also assisting other farmers, agriculture supply industry and agriculture technology providers.*

*He has been involved with the supply and fitment of numerous precision agriculture related hardware and sensors. He has always endeavoured to ensure that there was practical use of precision agriculture equipment that resulted in a financial or agronomic gain to the farmer.*

*Adrian has written and delivered training course in precision agriculture for government, agriculture colleges and private industry. He is still actively involved in learning about new technology and techniques of precision agriculture with the goal of developing inventive training programs that will result in adoption of precision agriculture by farmers.*

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- » IS CTF COMPATIBLE WITH LIVESTOCK IN THE SYSTEM?



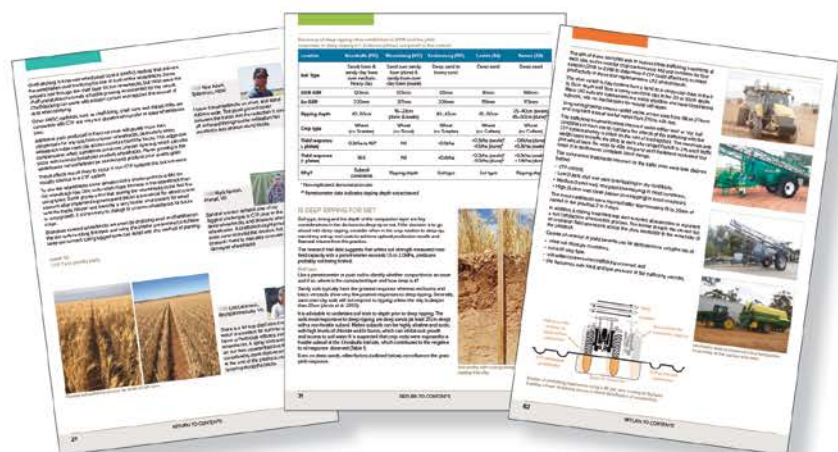
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# Oaten hay and the financial risk management considerations

*Ben Hogan.*

*ORM Pty Ltd.*

## Key Messages:

- ◆ Trade tensions with China saw many Australian exporter licenses not renewed in March 2021. In response, the area planted to oats is down across Australia this season.
- ◆ Anticipate pricing to be lower than previous seasons which may impact on gross margins.
- ◆ Profitability is not the only motivator for growing oaten hay.
- ◆ Three major considerations for integrating oaten hay into the rotation are shedding, machinery and labour.



## Introduction

Oaten hay has become an integral part of many farming systems. Export oaten hay markets have underpinned the demand for oaten hay produced across Victoria each season. A large quantity of that hay finds its way to destinations in China through several licensed exporters. In March 2021 a majority of export licenses were not renewed which has cast some doubt on the quantity of quality oaten hay that will be able to be exported from the 2021 harvest. We will examine the historical gross margins contributed by hay and analyse these in the context of the current market value.

## Content

In recent years China has taken a reported 30% of Australia's oaten hay exports (approx. 350k t / A\$160M). Twenty-eight licenses to export oaten hay to China were not renewed in March this year, and there are only 3 licences still in effect. There are no obvious markets to replace China at present.

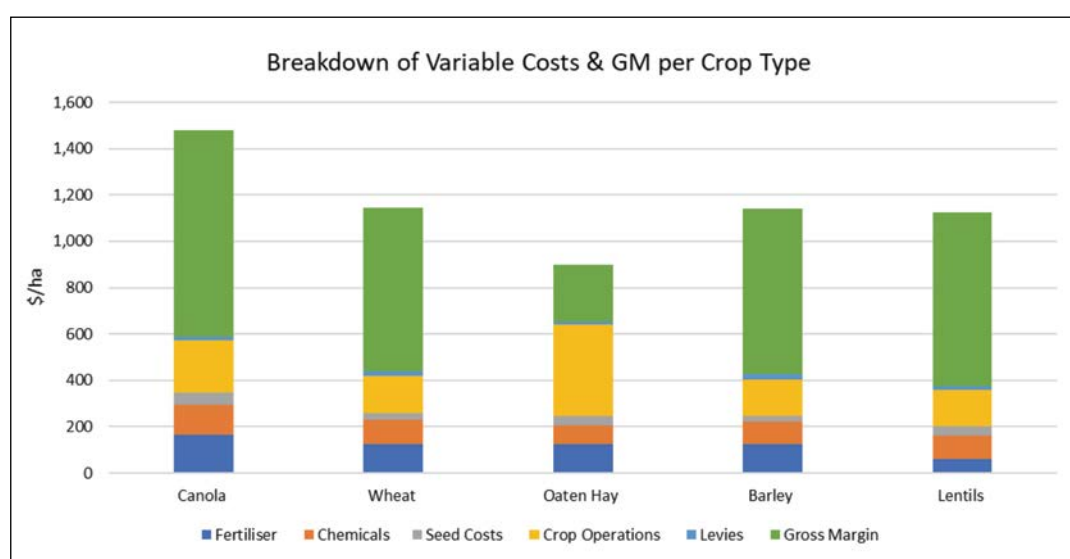
According to the ABARES June21 crop report, the area planted to oats has fallen by 7% because of lower domestic feed demand and concern trade tensions with China may adversely affect hay exports.



It is anticipated that pricing could be around \$150/tonne for 2021. This is on the back of less demand coming from the domestic and export market, as well sea freight costs increasing.

The graph below shows the gross margin analysis of different crop types based on current pricing and assuming \$150/tonne for oaten hay. Based on pricing of \$150/tonne and assuming fixed costs of at least \$300/Ha, on the face of it, oaten hay would be a loss maker.

<b>Table 1. Comparative gross margin of crops at current market value.</b>			
Jun-21	Price (\$/t)	Yield (t/ha)	Gross Margin (\$/ha)
Canola	\$ 740	2	892
Wheat	\$ 381	3	703
Oaten Hay	\$ 150	6	245
Barley	\$ 326	3.5	714
Lentils	\$ 750	1.5	749



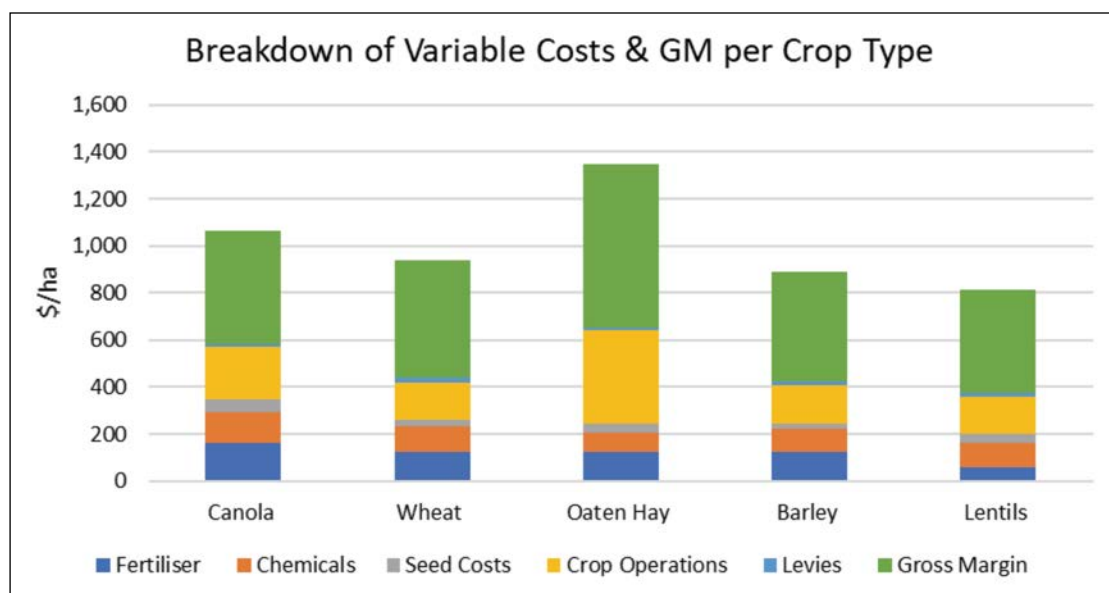
**Figure 1.** Breakdown of variable costs and gross margin by crop type at current market value.

Compare the current oaten hay gross margin 2021, \$245/ha above, to the historical 5-year average in the below table \$695/ha and we can see where the historical performance of oaten hay has been very strong. The value of oaten hay will have a substantial influence on the contribution to whole farm profitability which is an important consideration with respect to access to export markets. Historical results are also influenced by the strong demand for hay during the prolonged drought in New South Wales and Queensland.

<b>Table 2. Five-year average gross margin by crop type.</b>			
5 Yr Average	Price (\$/t)	Yield (t/ha)	Gross Margin (\$/ha)
Canola	532	2	480
Wheat	312	3	498
Oaten Hay	225	6	695
Barley	254	3.5	464
Lentils	540	1.5	437



The graph below shows the gross margin analysis using 5-year average commodity prices (sourced from Ag Profit Pty Ltd.) Oaten hay has the highest gross margin of \$695/ha in comparison to the other crop types.



**Figure 2.** Five-year average variable costs and gross margin by crop type.

The other benefits of growing oaten hay include:

1. Builds resilience into farm operations.
2. Reduces risk; less exposed to frost or a dry, heat spike in spring affecting grain crops.
3. Weed control, reducing weed seed set.
4. Utilisation of resources.

Biggest considerations for successfully integrating oaten hay into your enterprise includes the following:

1. Shedding
2. Machinery; mower, baler, telehandlers, trucks
3. Labour

The factors that require ongoing due diligence for oaten hay:

1. Timing.
2. Marketing.
3. Exporting partners.
4. Logistics.

Why working on this could be great for your farming business

- Underpin the sustainability and agronomic potential of your cropping rotation.
- Gross margins can be volatile but can reduce the risk and build financial resilience into the business.
- Spending the time and effort on due diligence and attention to detail can pay off.



## Self-evaluation

Could growing oaten hay improve the agronomic potential and financial performance of our business?

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Does the scale of my business justify the investment into infrastructure and equipment? \_\_\_\_\_

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Do we have the time and patience to deal with an added layer of complexity in our business? \_\_\_\_\_

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Does growing hay align with my appetite for risk? \_\_\_\_\_

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## We want to work on this in our business, what should we do next?

- Chat with your agronomist and business consultant.
- Undertake financial analysis and determine the feasibility for your business.

Our First Action \_\_\_\_\_

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Our Second Action \_\_\_\_\_

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## Want to learn more, here are some suggestions;

- Grain Research and Development Corporation [www.grdc.com.au](http://www.grdc.com.au)
- Australian Fodder Industry Association. [www.afia.com.au](http://www.afia.com.au)
- Chat with your local agronomist or business consultant.





### More about Ben . . .

*Ben was raised on a mixed farming property in the Western Wimmera. He has worked extensively in agribusiness, including banking, managing product lines and finance departments for large agribusinesses. Ben currently works as an Agribusiness Consultant with ORM, delivering strategic planning, farm business planning and financial data analysis services to clients.*

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# Paying off the debt and managing interest rate exposure:

Clinton Peake.

Proadvice Pty Ltd.

## Key Messages:

- ◆ Cashflow is king. Cashflow should evidence ability to repay debt over a reasonable period. (25 years) with sensitivity (higher interest rates and lower prices)
- ◆ Banks use interest rate cover ratio as a key metric. The three-year average of earnings before interest and tax (EBIT) divided by annual Interest.
- ◆ Generally, appetite exists to lend to greater than 50% equity. We believe greater than 70% equity is required before succession can occur for best results. So where you are in the business/life cycle matters.
- ◆ Account conduct is important to finance providers – timely reporting, meeting bank covenants, honesty and transparency, detailed forecasts with reasoned assumptions.
- ◆ Key risks to be addressed and managed include cyclical upturn in interest rates and/or a downturn in commodity prices.

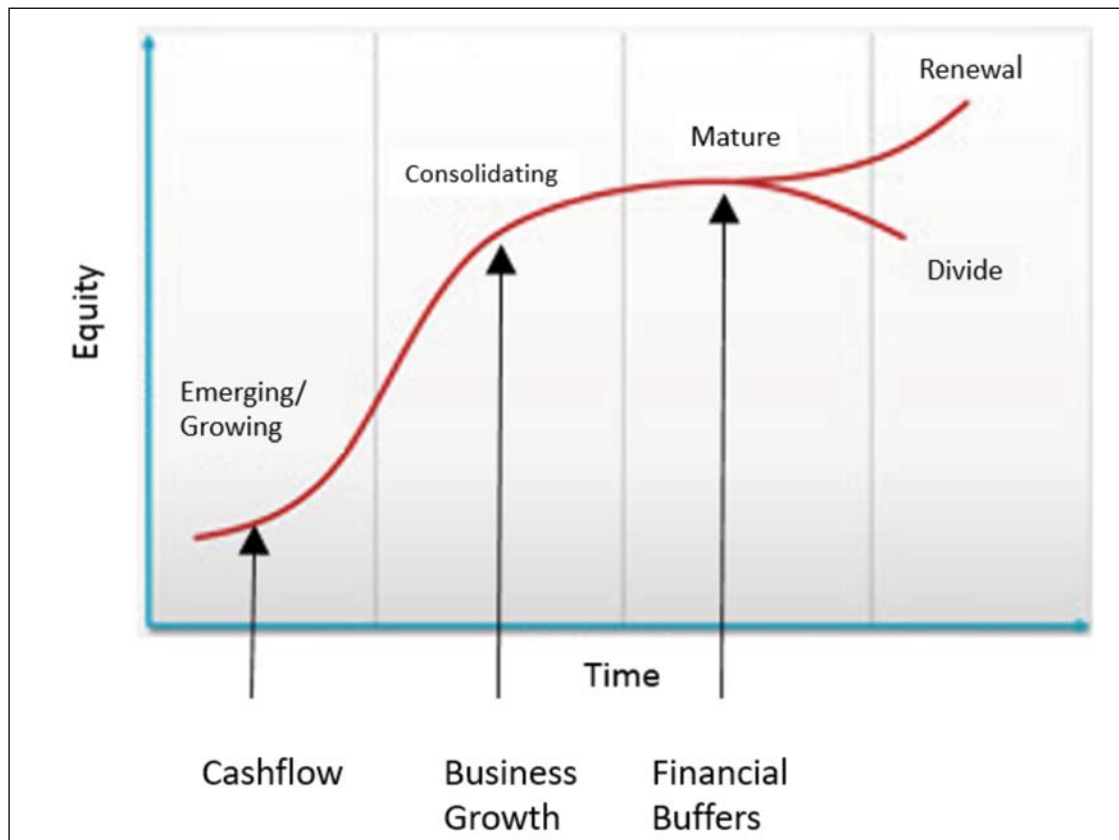


Figure 1. Business Life Cycle.



## Introduction

Experience tells us agriculture is subjected to cycles from high production or prices to low production or prices. We need to consider individually and as businesses where we are in the business life cycle, what our stretch goals are and what our discipline is to manage risk along the way to protect what we have built up.

We are in interesting times of booming protein prices, good subsoil moisture and potentially high yields with our cropping enterprises. Machinery costs continue to rise as farms increase scale and capacity.

Businesses that excel are very good at what they do and achieve periods of debt consolidation. Today we try to figure out if consolidating and retiring debt is prudent or whether “pinning the ears back” and growing by taking advantage of relatively cheap debt maximises the probability of success.

It is not one size fits all, so I hope to explain the counter balancing concepts.

## Key Concept

- Know and protect your cashflow to achieve your goals.
- Look over the horizon at what your next 5-10 years needs are and position for succession a long way out.
- Form policy around “windfall gain” prices and utilise to your best advantage for example, expansion or debt retirement?

## Content

Over the last 30 years of declining interest rates, 95% of debt on farms has been interest only. Many family farm businesses started off with relatively low equity and have expanded exponentially as asset prices have grown with time healing many balance sheets. The inflation of land value has facilitated growth of machinery pools and acquisition of further land holdings, even when operating profits have been break even or even small losses. Debt as leverage has been a vital tool in this growth and has been a primary tool of succession and funding off farm members of the family. In many cases debt against the land asset has also facilitated the education goals of families along the way.

As we emerge out of the pandemic there will be a structural shift and that is why we are talking about this today. 30 years of declining rates reached a crescendo in some ways with the RBA cash rate hitting and remaining at 0.1%. At some ill-defined point in the future, the trend will reverse with interest rates experiencing an upward trend. The issue of cashflow to service debt will arise placing increasing pressure on gross margins, especially if it coincides with a decline in yield or a decline in price or potentially both.

In terms of succession, we often talk about growing equity to 70% to enable the next generation some leeway in making their mistakes from a comfortable equity base to give the highest probability of ongoing success. This will provide the financial resilience required to trade through a year or two of low income.

Banks and advisers are looking for businesses to be on top of their bookwork, to be aware of their gross margins and their return on machinery spend. Understanding the efficiency of machinery investment and whether expansion is needed to utilise the machinery already held to generate increased income; or whether a better course of action is to continue with the existing area, reduce principal debt to position the business to service remaining debt as the cycle turns.

Interest rate cover is a metric that indicates the ability of the business to meet their interest costs. The banks like to see an average interest rate cover of greater than two. At the present time, it really should be greater than three given the very low prevailing interest rate. An interest coverage lower than 1.0 would indicate that the business is not generating sufficient earnings before interest and tax to meet their interest obligations.

It is good to include land lease costs in a finance to income ratio and benchmark that to a target range of less than 15% of total income ideally, depending on the owner’s tolerance to “risk” and ability to generate cashflow. The main reason for including any lease costs is that it is an alternate way of financing the area being used. If you were not paying lease, you would be paying interest, so it forms the same metric.



Recently banks appear to be reducing their focus and the priority placed on equity. Fundamentally this is due to the very rapid capital value appreciation and the concern within risk management circles that a bubble may be forming. Consequently, they are taking a conservative view on equity levels to offset the rapid increase in land value. By using seven years of production records, the banks are looking to see through periods of boom and bust to get to a view of year in year out production.

As a guide, the banks will be looking for a business plan that includes a reflection of your present balance sheet position and debt to equity position, along with a forecast of your assumptions on yield and price and how this compares to the banks internal view of likely yields and price by geography and rainfall. Whilst many loans are provided as interest only facilities. Since the banking royal commission, the banks are required to measure whether the business has the ability to meet principal and interest payments by the credit departments.

Assuming the business makes sense in terms of production numbers and gross margins and can manage overhead costs, the next area of scrutiny is account behaviour. Practical examples of what is deemed poor behaviour is being late with ATO lodgements or payments. Which is why banks now ask for the ATO portal information along with the financials and tax returns at annual review time. Being late with data for the annual review is a black mark, as is providing scant or incorrect information on request. The bank has two levels of pricing, the cost of money which you as a consumer really can't do much about and the risk rating which directly reflects your financial and production ratios and account behaviour. We cannot stress enough that it impacts your risk rating, and therefore interest rate, to not provide good information to the bank at or before when they ask for it.

Finally, best practice is to dilute above average pricing back to more usual year in year out pricing for your present yields and to uplift and interest rates to a higher plane to retest or stress test your interest cover. Also document how exposed the business is to a 10% decline in price or a 3% increase in costs. One or both could happen in the next five-year cycle. Machinery costs are increasing quickly and represent a very real inflation risk which needs to be actively managed.

## Why working on this could be great for your farming business

- As businesses become bigger and more complex to manage, there is a greater effort required to protect what you have built. Proactive risk management can prevent poor decisions that family groups can pay for over a generation or more.
- Once satisfied that stress testing has been completed and the opportunity in front of you remains viable, confidence can be gained, in moving forward. Good communication and transparency will enable you to bring the advisers, banks, family and next generation along for the journey.
- Evidence-based decision-making, acknowledging risk and cycles is part of every good business governance process. This also helps continue the journey of the family farm as a business and separate to the family unit.

## Self-evaluation

If interest rates were six percent, what impact would this have on your interest expenses annually, how would this increase be managed?

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How many years out from succession events should we be starting to think about our equity position?

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Why should we pay off any debt at all, shouldn't we just grow forever? \_\_\_\_\_

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**We want to work on this in our business, what should we do next?**

- Meet with your bank and find out where you sit in terms of risk rating and ask proactively what they need from you to reduce that rating.
- If not done already, ask your adviser to segment your enterprises into gross margin by enterprise, overhead and have them run some basic ratio analysis of gross margin percentage, overhead percentage and finance ratio percentage to see where you are at.
- Complete half yearly interest cover analysis.
- Consider a 10-year capital replacements program to enable you to balance the competing needs to update expensive machinery, service debt, manage tax and achieve your life goals.

**Our First Action** \_\_\_\_\_

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## Our Second Action \_\_\_\_\_

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### Want to learn more, here are some suggestions;

- Consider a business coach or consultant to provide discipline to stop, check and reflect and work on the business away from working in the business.
- Ask more of your advisers to be partners in business and sharing the mental load of plotting your course to the achievement of your visions and goals (or plan your goals if not yet completed).
- Build your management reporting to the point where you receive reports and govern your business with evidence.

### Acknowledgements.

Business banking fraternity who are giving of their time and benchmarks in the pursuit of farming success.



### More about Clinton . . .

*Clinton is currently Managing Director of Proadvice. With over 20 years' experience working with farmers and services to farmers Clinton is well versed in the good year, average year, poor year cycles and is a realist who tactfully tells it like it is.*

*As a former first class cricketer he has lived in high performance environments and understands that it is the best 1% of the best 1% who really succeed in sport and in business by being elite at the basics. Common sense and evidence-based decision making is at the forefront of his approach.*

*By focussing on the important rather than the urgent, Clinton seeks to advise on the best combination of actions to review systems, define the outcome desired and methodically work toward that shared goal starting with strategy and working backwards to what that means in operations.*

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# LOOK AROUND YOU.

1 in 5 people in rural Australia are currently experiencing mental health issues.



**GRDC**  
GRAINS RESEARCH  
& DEVELOPMENT  
CORPORATION

The GRDC supports the mental wellbeing of Australian grain growers and their communities. Are you ok? If you or someone you know is experiencing mental health issues call *beyondblue* or Lifeline for 24/7 crisis support.

**beyondblue**  
1300 22 46 36  
[www.beyondblue.org.au](http://www.beyondblue.org.au)



**Lifeline**  
13 11 14  
[www.lifeline.org.au](http://www.lifeline.org.au)



## Looking for information on mental wellbeing? Information and support resources are available through:

**[www.ifarmwell.com.au](http://www.ifarmwell.com.au)** An online toolkit specifically tailored to help growers cope with challenges, particularly things beyond their control (such as weather), and get the most out of every day.

**[www.blackdoginstitute.org.au](http://www.blackdoginstitute.org.au)** The Black Dog Institute is a medical research institute that focuses on the identification, prevention and treatment of mental illness. Its website aims to lead you through the logical steps in seeking help for mood disorders, such as depression and bipolar disorder, and to provide you with information, resources and assessment tools.

**[www.crrmh.com.au](http://www.crrmh.com.au)** The Centre for Rural & Remote Mental Health (CRRMH) provides leadership in rural and remote mental-health research, working closely with rural communities and partners to provide evidence-based service design, delivery and education.

### Glove Box Guide to Mental Health

The *Glove Box Guide to Mental Health* includes stories, tips, and information about services to help connect rural communities and encourage conversations about mental health. Available online from CRRMH.



**[www.rrmh.com.au](http://www.rrmh.com.au)** Rural & Remote Mental Health run workshops and training through its Rural Minds program, which is designed to raise mental health awareness and confidence, grow understanding and ensure information is embedded into agricultural and farming communities.

**[www.cores.org.au](http://www.cores.org.au)** CORES™ (Community Response to Eliminating Suicide) is a community-based program that educates members of a local community on how to intervene when they encounter a person they believe may be suicidal.

**[www.headsup.org.au](http://www.headsup.org.au)** Heads Up is all about giving individuals and businesses tools to create more mentally healthy workplaces. Heads Up provides a wide range of resources, information and advice for individuals and organisations – designed to offer simple, practical and, importantly, achievable guidance. You can also create an action plan that is tailored for your business.

**[www.farmerhealth.org.au](http://www.farmerhealth.org.au)** The National Centre for Farmer Health provides leadership to improve the health, wellbeing and safety of farm workers, their families and communities across Australia and serves to increase knowledge transfer between farmers, medical professionals, academics and students.

**[www.ruralhealth.org.au](http://www.ruralhealth.org.au)** The National Rural Health Alliance produces a range of communication materials, including fact sheets and infographics, media releases and its flagship magazine *Partyline*.





# THE 2020-2022 GRDC SOUTHERN REGIONAL PANEL

May 2021

## CHAIR - JOHN BENNETT

Lawloit, VIC



Based at Lawloit, between Nhill and Kaniva in Victoria's West Wimmera, John and his family run a mixed farming operation across diverse soil types. The farming

system is 70 to 80 per cent cropping, with cereals, oilseeds, legumes and hay grown. He wants to see RD&E investments promote resilient and sustainable farming systems that deliver more profit to growers and ultimately make agriculture an exciting career path for young people.

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## JON MIDWOOD

Inverleigh, VIC



Jon has worked in agriculture for the past three decades, both in the UK and in Australia. He has managed Grainsearch, a grower-funded company evaluating European wheat

and barley varieties for the high rainfall zone, and his consultancy managed the commercial contract trials for Southern Farming Systems (SFS). Jon was a member of the GRDC's HRZ (RCSN (now National Grower Network) and became a GRDC Southern Panel member in 2015. In 2020 Jon set up an independent consultancy, TechnCrop Services.

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## PRU COOK

Dimboola, VIC



Pru was raised on a mixed farm at Diapur in Victoria's Wimmera region. She has worked at the Victorian Department of Primary Industries and GRDC, where she implemented

GRDC's first social media strategy. She then worked at Birchip Cropping Group, managing and supporting extension projects. She has recently started her own business focusing on extension, project development and management.

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## DEPUTY CHAIR - KATE WILSON

Hopetoun, VIC



Kate is a partner in a large grain producing operation in Victoria's Southern Mallee region and produces wheat, canola, lentils, lupins and field peas. Kate has been an agronomic

consultant for more than 20 years servicing the Mallee and northern Wimmera. Kate is passionate about producing high quality grain, whilst enhancing the natural ability of the soil. Kate is passionate about research and the extension of that research to bring about positive practice change to growers.

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## LOU FLOHR

Lameroo, SA



Lou is a farmer based at Lameroo in the Southern Mallee of South Australia. With her parents and partner, she runs a mixed farming enterprise which includes export oaten hay,

wheat, barley, a variety of legumes and a self-replacing Merino flock. Prior to returning to the family farm, Lou had a 10-year agronomy career, servicing the Upper South East and Mallee. She is passionate about her industry, particularly in recognising the role that women play in the industry and on the land.

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## MICHAEL TRELOAR

Cummins, SA



Michael is a third-generation grain grower based at Cummins on South Australia's Eyre Peninsula, where he grows wheat, barley, canola, beans, lupins and lentils on a range

of soil types. He has been involved in the South Australian Grains Industry Trust, the Lower Eyre Agricultural Development Association and the South Australian No Till Farmers Association. He believes research and development underpins profitability in Australian farming systems and the GRDC is pivotal in delivering research outcomes that support growers.

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## ANDREW RUSSELL

Rutherglen, VIC



Andrew is Managing Director and a shareholder of Lilliput AG, and a Director and shareholder of the affiliated Baker Seed Co, a family-owned farming and seed cleaning

business. He manages a 2500ha mixed cropping enterprise south of Rutherglen. Lilliput AG produces wheat, canola, lupin, faba bean, triticale, oats and sub clover for seed and hay. Andrew served on the GRDC's medium rainfall zone RCSN (now National Grower Network) and has held many leadership roles. He holds a Diploma of Rural Business Management and an Advanced Diploma of Agriculture.

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## ANDREW WARE

Port Lincoln, SA



Andrew is a research agronomist, based at Port Lincoln on SA's Eyre Peninsula. He started his career with the South Australian Research and Development Institute (SARDI) at

the Minnipa Agriculture Centre, and then spent time at CSIRO in Adelaide. Andrew managed the family farm on Lower Eyre Peninsula for 10 years before returning to SARDI in late 2009. In 2019, Andrew started his own research company EPAG Research, delivering applied research across Eyre Peninsula. Andrew received the GRDC Southern Panel's Emerging Leader award in 2018, and prior to joining the Panel he served on the GRDC's low rainfall zone RCSN (now National Grower Network).

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## MICHELLE WATT

Melbourne, VIC



In February 2020 Professor Michelle Watt was appointed the Adrienne Clarke Chair of Botany at the University of Melbourne. From 2015

to 2019, she was Director of the Plant Sciences Institute at the Helmholtz Centre and Professor of Crop Root Physiology at the University of Bonn in Germany. Prior to 2015 Michelle was at CSIRO. She has been in multi-partner projects with Australia, the USA, India, the Philippines, UK and Germany in the under-studied but critical area of plant roots. She is President of the International Society of Root Research and Co-Chair of the Root Phenotyping.

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## DR NICOLE JENSEN

Canberra, ACT



Nicole is general manager of GRDC's Genetic and Enabling Technologies business group. She brings a wealth of experience in digital agriculture, plant breeding and genetics from roles she has held in Australia and internationally in the seed industry.

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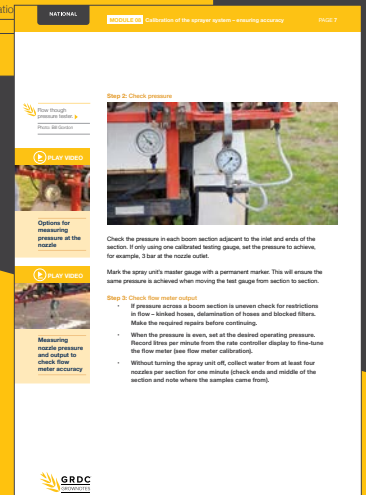
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# SPRAY APPLICATION GROWNOTES™ MANUAL



## SPRAY APPLICATION MANUAL FOR GRAIN GROWERS

The Spray Application GrowNotes™ Manual is a comprehensive digital publication containing all the information a spray operator needs to know when it comes to using spray application technology.

It explains how various spraying systems and components work, along with those factors that the operator should consider to ensure the sprayer is operating to its full potential.

This new manual focuses on issues that will assist in maintaining the accuracy of the sprayer output while improving the efficiency and safety of spraying operations. It contains many useful tips for growers and spray operators and includes practical information – backed by science – on sprayer set-up, including self-

propelled sprayers, new tools for determining sprayer outputs, advice for assessing sprayer operation, improving droplet capture by the target, drift-reducing equipment and techniques, the effects of adjuvant and nozzle type on drift potential, and surface temperature inversion research.

It comprises 23 modules accompanied by a series of videos which deliver 'how-to' advice to growers and spray operators in a visual easy-to-digest manner. Lead author and editor is Bill Gordon and other contributors include key industry players from Australia and overseas.

Spray Application GrowNotes™ Manual – go to:  
<https://grdc.com.au/Resources/GrowNotes-technical>  
 Also go to <https://grdc.com.au/Resources/GrowNotes>  
 and check out the latest versions of the Regional Agronomy  
 Crop GrowNotes™ titles.





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## Acknowledgements

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The ORM team would like to thank those who have contributed to the successful staging of the Swan Hill & Horsham GRDC Farm Business Update:

- The local GRDC Farm Business Update planning committee.





Prefer to provide your feedback electronically or 'as you go'? The electronic evaluation form can be accessed by typing the URL address below into your internet browsers:

[www.surveymonkey.com/r/VicFBU](http://www.surveymonkey.com/r/VicFBU)

To make the process as easy as possible, please follow these points:

- Complete the survey on one device
- One person per device
- You can start and stop the survey whenever you choose, **just click 'Next' to save responses before exiting the survey.** For example, after a session you can complete the relevant questions and then re-access the survey following other sessions.



## 2021 Swan Hill & Horsham GRDC Farm Business Updates Feedback

### 1. Name

ORM and/or GRDC have the permission to follow me up in regards to post event outcomes.

### 2. Location of Update

- Swan Hill  Horsham

### 3. How would you describe your main role? (choose one only)

- Grower  Grain marketing  Student  
 Agronomic adviser  Farm input/service provider  Other\* (please specify)  
 Farm business adviser  Banking  
 Financial adviser  Accountant  
 Communications/extension  Researcher

**Your feedback** Please rate each presentation you attended in terms of relevance and quality (10 = totally satisfactory, 0 = totally unsatisfactory).

### 4. Competition for farming land - Analysing the viability in a tight market. *Chris Lawlor*

Content relevance  /10 Presentation quality  /10

Have you got any comments on the content or quality of the presentation?

### 5. Diversifying income streams - more eggs in more baskets. *Jenny Moore*

Content relevance  /10 Presentation quality  /10

Have you got any comments on the content or quality of the presentation?

### 6. Machinery investment – what works for my business? *Ben White*

Content relevance  /10 Presentation quality  /10

Have you got any comments on the content or quality of the presentation?

### 7. Technology investment - Early adoper or late to the party? *Adrian Roles*

Content relevance  /10 Presentation quality  /10

Have you got any comments on the content or quality of the presentation?



