

FARM BUSINESS UPDATE

STRATEGIC STEPS – ENDURING PROFIT



In conjunction with Hart Field Site Group's Getting the Crop In

Clare

Wednesday 14th March

9.00am to 4.30pm

The Vine Church, Stradbroke Road, Clare

#GRDCUpdates





2018 Getting the Crop In
Convened by Hart Field Site Group



Clare GRDC Farm Business Update
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Getting The Crop In

2018

Wednesday 14th March

8am – 12:15pm

Clare, SA



flexicoil



Dylan Bruce, regional intern, Hart

What are we learning about early sowing winter wheats?

**includes official release of the 2017 Hart Trial Results book*



Rabobank

Kenton Porker, research scientist, SARDI

Are we 'barley' scratching the surface of new variety potential?

Ben Hunt, farmer, Bordertown, SA

Spreading the risk between cropping & livestock – hunting the right mix

Ben and wife Jules farm 1200-hectares at Bordertown in the state's South East; he'll talk about all aspects of their cropping and livestock enterprises, including the different approaches they've taken to integrate various systems into their operations.

Sam Chambers, Agribusiness Risk & Treasury, Rabobank

Price risk management against current market dynamics

Farmer panel Q&A

Ben Hunt (Bordertown), plus two local growers

'Getting the crop in' – three farmers share their strategies to kick off the 2018 growing season

....with plenty of time for questions from the floor

TEXT YOUR QUESTION

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If you have a question for one of our speakers, you can text it (starting with their name) to the number above

www.hartfieldsite.org.au

What are we learning about early sowing winter wheats?

Dylan Bruce, regional intern, Hart Field-Site Group

Dylan has just completed his regional internship with the Hart Field-Site Group.

Over the past 12 months he has been involved in every stage of the Hart research program from trial planning and sowing through to harvest and analysis. During his time at Hart he was responsible for the field management of trials in a new GRDC project 'Development of crop management packages for early sown, slow developing wheats in the Southern region'.

Today he completes his time with Hart by presenting key findings from local research at Hart and Booleroo. His presentation will focus on how well winter wheats performed in 2017 compared to traditional spring varieties. Dylan will also share results from a growth chamber experiment he completed as part of this project on wheat coleoptile length at the Waite Research Institute.

NOTES:

**The internship provides an opportunity for the successful applicant to join Hart's research program and collaborate with other researchers, industry reps, consultants and growers to deliver research projects in regional South Australia. The program is supported by Hart, SARDI and the South Australian Grains Industry Trust to encourage early career graduates into applied grains research and development careers and is now in its third year.*

Dylan Bruce: (via) trials@hartfieldsite.org.au



Are we 'barley' scratching the surface of new variety potential?

Kenton Porker, research scientist, SARDI

Kenton Porker is a research scientist for SARDI's New Variety Agronomy group based at the Waite Campus.

Kenton has just been putting the finishing touches in his PhD in barley genetics and physiology. More recently he has become involved in a wide range of national barley and wheat agronomy projects.

Today Kenton's presentation "*Are we 'barley' scratching the surface of new variety potential?*" will give you an update on varietal selection for different environments. Are some of the new barely varieties here to stay and if so do they require different management? In this session he will give us a closer look at NVT results, time of sowing trials and options for manipulating canopy structure.

NOTES:

Kenton Porker: kenton.porker@sa.gov.au



Spreading the risk between cropping and livestock – hunting the right mix

Ben Hunt, farmer, Bordertown SA

Ben and wife Jules are working through the transition of running the family's 1200-hectare farm following the recent retirement of Ben's father Bill, and along with the challenges that in itself presents, they continue to look at ways they can "spread the risk between cropping and livestock".

Anyone who follows Ben's Twitter handle @funky_farmer will have seen some of his trials and tribulations in running the farm of which 70 per cent is focussed on cropping, alongside a flock of 1300 self-replacing Merino ewes.

Today, Ben will also speak about growing clover inter-rowed with barley, along with other crops including faba beans, vetch, millet, and growing oats for the Quality Wise rolled oats brand for which he has become a 'farming face' for consumers as part of the company's traceable product initiative.

NOTES:

Ben Hunt: nalangfarms@outlook.com / [twitter: @funky_farmer](https://twitter.com/funky_farmer)

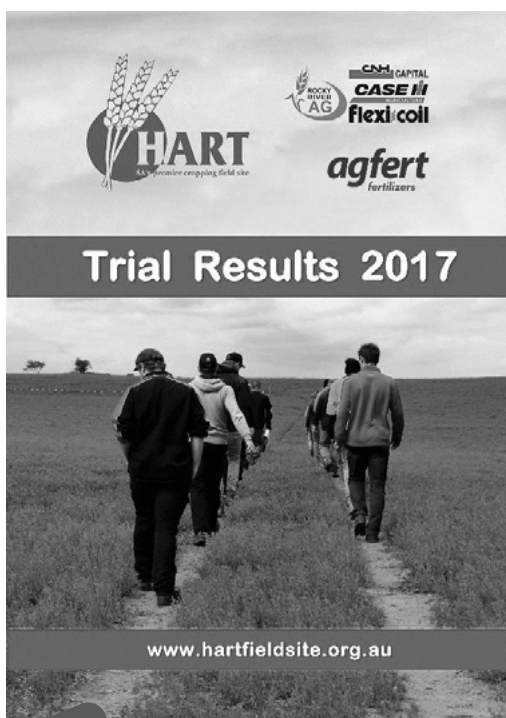


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Price risk management against current market dynamics

Sam Chambers, Agribusiness Risk & Treasury, Rabobank

Sam has 10 year's experience in the financial services and commodity trading spheres joining Rabobank from Commodities where, amongst other things, he was responsible for developing hedging & trading strategies as well as trading basis and physical commodities.

Sam's personal, professional and academic background leaves him well placed to discuss different marketing strategies available to growers. He holds a Masters of Applied Finance majoring in Risk Management (Kaplan) and a Bachelor of Agricultural Economics majoring in Agricultural Economics, Finance and Economics (University of Sydney).

NOTES:



Sam Chambers: samuel.chambers@rabobank.com

Farmer panel Q&A

'Getting the crop in' ... three farmers share their strategies to kick of the 2018 season

Ben Hunt (Bordertown), Neil Wittwer (Paskeville), Andrew Mitchell (Mintaro)

Hear more from our guest farmer Ben Hunt and a couple of local guys, each with a different experience to share.

With farms of varying sizes and enterprise mix from Bordertown, Paskeville and Mintaro, these growers will share their strategies and priorities when planning for the season ahead.

We'll start with some discussion about the decisions they've already made to prepare for the 2018 season and what's next on the list.

And of course we'll be encouraging grower to grower learning with lots of time for your questions.

NOTES:

We're in the process of trial planning for 2018 right now. If you have an idea we'd love to hear it - please contact any one of our board members or Hart R&E manager Sarah (trials@hartfieldsite.org.au).

HART 2018 EVENTS

Getting The Crop In

14th March 2018

8am – 12:15pm

Industry guest speakers from across the county cover a wide range of topics, all relevant to broad-acre cropping. We always treat you to breakfast first!

Winter Walk

17th July 2018

9am – 12pm

An informal guided walk around the trial site; your first opportunity to inspect the site post seeding, with guest speakers presenting their observations on current trials. They are on hand to answer your questions and will also share their knowledge on all the latest cropping systems and agronomic updates.

Spring Twilight Walk

16th October 2018

5pm followed by BBQ

Another informal opportunity to inspect the trial site, this time just prior to harvest, again with industry researchers & representatives presenting in the field.

This event is followed by drinks and a BBQ in the shed - a great opportunity to chat more about how your season is unfolding and to catch up with other farmers in our district and beyond.



HART FIELD DAY

18th September 2018

9am – 3:30pm

Our main Field Day attracts hundreds of visitors from all over the Mid-North, South Australia and interstate.

With a rolling program of half hour sessions conducted simultaneously throughout the day, highly regarded specialists speak at each trial, backed up by a comprehensive take-home Field Day Book included in your entry fee.

Tailor your own program for the day to hear about the trials that interest you.

Plenty of parking; buses and group bookings welcome.



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GRDC FarmBusiness Update

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Program

1.00 pm	Announcements	ORM
1.05 pm	GRDC welcome and update	
1.10 pm	Benchmarking Australian grain growing businesses. How do we compare with businesses around the world	Ashley Herbert, <i>Agrarian Management</i>
1.50 pm	Risk and enterprise mix	Cam Nicholson, <i>Nicon Rural Services</i>
2.30 pm	Afternoon tea	
2.50 pm	Taking a planned approach to investment in plant and equipment	David Smith, <i>ORM Pty Ltd</i>
3.30 pm	Farm generational transfer – processes and structures	Stephen Park, <i>Pacer Legal</i>
4.10 pm	Close and evaluation	



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or
-  **eBook** – Go to www.grdc.com.au/FarmingTheBusinessBook for the Apple iTunes bookstore, and download the three modules and sync the eBooks to your iPad.



Australian wheat production compares well to global competitors - an international benchmarking comparison

Ashley Herbert.

Agrarian Management.

GRDC project code: AAM00001

Keywords

- benchmarking, enterprise margin, costs, income.

Take home messages

- Wheat production in Australia tends to be relatively high cost with high levels of yield variation between years compared to other major wheat exporting regions of the world.
- The key strength or advantage of the Australian farms lies in the value achieved for grain sales.
- There is a real need to preserve or protect the existing markets and value of Australian wheat.

Introduction

Australian wheat production and profitability compares well to our international competitors according to data from the global benchmarking network, agri benchmark cash crop (<http://www.agribenchmark.org/cash-crop.html>). This international analysis is part of the GRDC project AAM00001 and covers the five year period from 2011 to 2015.

Agri benchmark (www.agribenchmark.org) is a global network of professionals in agriculture from the major grain growing regions of the world. The aim of the network is to improve the understanding of grain production systems throughout the world through benchmarking. The network is administered and managed through the Thünen Institute of Farm Economics in Germany.

Participating network members establish a 'Typical Farm' for a defined region. These are virtual farms that reflect what would be considered typical for the targeted region in terms of scale, crops grown,

rotations, inputs, operations, machinery, labour, costs and income. Each year the data is updated according to the prevailing conditions of the season.

The data is then compiled into a single database by the agri benchmark staff at the Thünen Institute. Financial data is converted into USD and EURO based on the average exchange for the year.

This study includes 41 typical farms located in the European Union (21), Canada (4), USA (1), Ukraine (2), Russia (1), Argentina (3), Uruguay (2) and Australia (7). While there are additional farms within the database, only the results of those with a continuous dataset for the five year period of 2011 to 2015 have been presented within this paper.

This report focusses on wheat and includes summaries of:

- Yields and yield variability.
- Farm gate grain prices.
- Crop income and production costs.
- Enterprise margins.



Australian representation

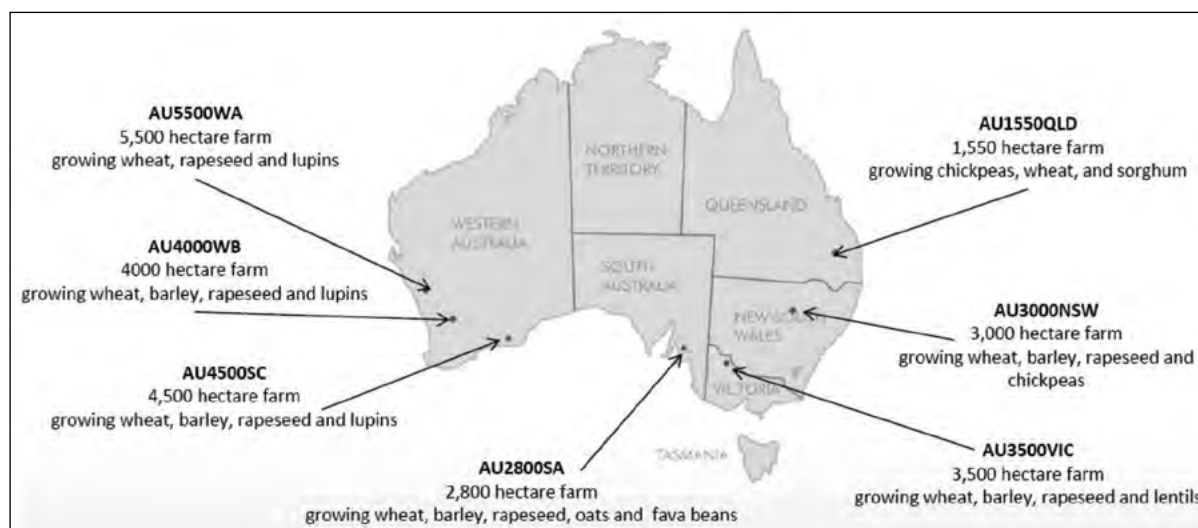


Figure 1. Location of the Australian farms that are within the agri benchmark network.

Table 1. Legend for country codes used in tables and figures within this paper.

Code	Country/Town	Code	Country/Town	Code	Country/Town
AUWB	Australia, Kellerberrin	AWSC	Australia, Esperance	AUNSW	Australia, Gulargambone
AUQLD	Australia, Dalby	AUSA	Australia, Freeling	AUVIC	Australia, Sea Lake
AUWA	Australia, Tenindewa	RU	Russia	UA	Ukraine
BG	Bulgaria	CZ	Czech Republic	DE	Germany
DK	Denmark	FR	France	HU	Hungary
PL	Poland	SE	Sweden	UK	United Kingdom
CA	Canada	US	United States of America	AR	Argentina
UY	Uruguay				

Yield

The five year average yields of wheat in this analysis range from 1.6t/ha (AUVic) to 9.7t/ha (EU) with the EU standing out as the highest yielding region with a range of 4.7t/ha to 9.7t/ha. Within

this group the highest yields are achieved on the typical farms from the Western European countries (including the UK) (Figure 2).

Wheat yields from the non EU farms ranged from 1.6t/ha (AUVic) to 5.4t/ha (Ukraine).

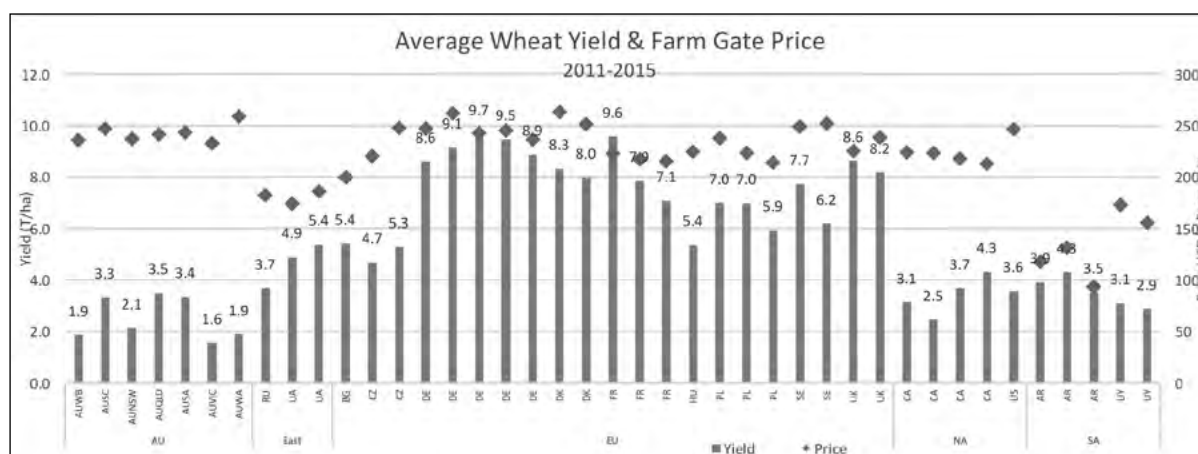


Figure 2. Average wheat yields and grain prices (\$US/t farm gate) for the five years from 2011 to 2015.



High yield variability between years is a stand out feature of the Australian farms. The Australian wheat yields have been the most variable over the last five years with an average coefficient of variation (CoV) of 25% over this period (ranging from 9% AUQLD to 44% AUNSW).

In general, yields on the EU, North American, Argentinian and East region farms have been relatively stable with an average CoV of 12%, 13%, 15% and 12% respectively.

The highest level of yield variation within the dataset was recorded on the AUNSW farm reflecting the extreme fluctuations of seasonal conditions in the study period. The recorded yields for this farm ranged from 0.8t/ha to 2.9t/ha.

Price

Grain prices are presented on a farm gate basis per tonne nett of freight to end point and include all selling costs. The price reflects the total value of grain produced including premiums or discounts for quality or grade.

The wheat price has been relatively consistent across regions with \$US31/t difference between the 25th and 75th price percentile. The median price for the dataset was \$US225/t.

The prices for the Australian farms have been relatively high and consistent between farms. The combined average for the Australian farms of \$US242/t compares very well to other regions and is just under the 75th percentile of the dataset. This is particularly significant given the generally high cost of getting Australian grain from farm to port.

Table 2. Average farm gate wheat price (\$US/t) for the years 2011 to 2015.

Typical farm regions	Farm gate price (\$US/t)			
	Average	25th Percentile	Median	75th Percentile
AU4000WB	\$236			
AU4500SC	\$247			
AU3000NSW	\$237			
AU1550QLD	\$241			
AU2800SA	\$243			
AU3500VIC	\$233			
AU5500WA	\$259			
AUSTRALIA	\$242			
East Europe	\$181			
EU	\$235	\$223	\$238	\$247
North America	\$225			
Argentina	\$114			
Uruguay	\$164			
All farms	\$219	\$214	\$225	\$245

Income and costs

In order to meaningfully compare between farms and regions, costs, income and profit margin are calculated on a tonne of production basis. On this basis the EU farms are no longer distinctive as a group and the Argentinian farms are clearly the lowest cost producers (Figure 3). Total costs of production ranged from \$US107/t (Argentina) to \$US206/t (AUNSW).

There is a high level of variation in costs per tonne of production within the Australian group ranging from the highest for the dataset (AUNSW \$US206 and AUWA \$US215) to some of the lowest (ex-Argentina).

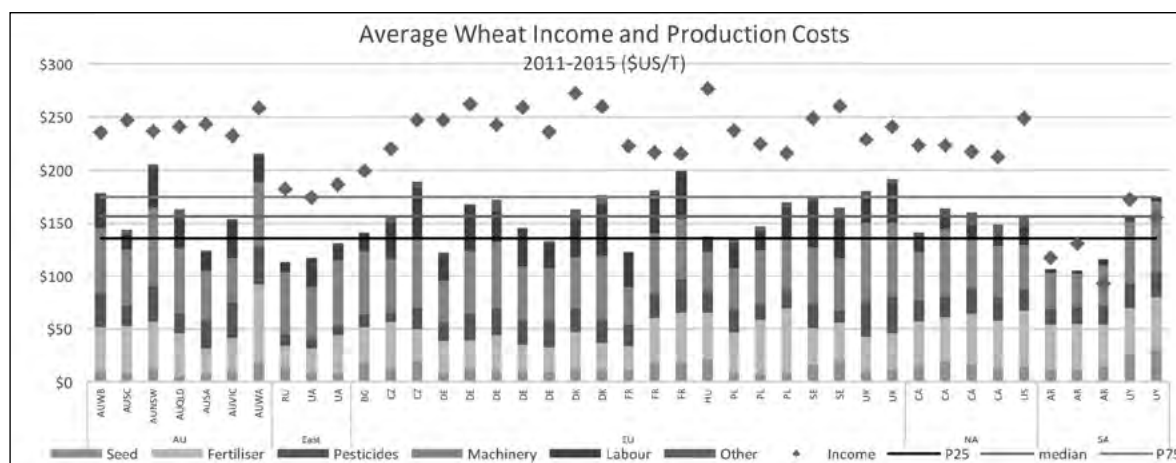


Figure 3. Average wheat income and costs per tonne (\$US) of production for the period 2009 to 2013. P25 (low line) and P75 (high line) refers to the 25th and 75th percentiles for the total production costs of the dataset, respectively.



The high average cost for AUNSW is the result of the exceptionally poor yield in 2013 of 0.8t/ha. This will have a disproportionate effect on the average costs per tonne in the short term, assuming that such yields occur far less frequently than one in four years.

One common feature across all farms is the high cost of fertiliser and machinery. While there is some level of variation between the individual farms these two items were consistently the highest cost items at the regional level.

The Argentinian farms have the lowest costs per tonne of production with an average of \$US109/t (dataset median \$US156/t) which is driven for the most part by the significantly lower machinery and labour costs. A key point of difference on these

farms is the exclusive use of contractors for all cropping activities. Machinery costs include fuel, repairs, contracts and depreciation. According to the network partners this is common practice in the grain growing regions of Argentina.

As a region, Australia has the highest costs of production with an average of \$US169/t ranging from a low of \$US124/t to \$US215/t. This represents a range of \$US91/t.

The high production costs of the AUWA farm (\$US215/t) is relatively consistent across years and is primarily due to a high cost structure across the board. Fertiliser in particular is the highest cost in the data set at \$US74/t reflecting a relatively high input system.

Table 3. Average and median production costs per tonne of wheat production for the period 2011 to 2015.

Region/ Farm	Cost per tonne of production (USD)					
	Seed	Fertiliser	Pesticides	Labour	Machinery	Total
AU4000WB	\$11	\$41	\$33	\$32	\$60	\$179
AU4500SC	\$8	\$45	\$20	\$15	\$52	\$144
AU3000NSW	\$14	\$43	\$34	\$38	\$74	\$206
AU1550QLD	\$5	\$40	\$19	\$31	\$62	\$163
AU2800SA	\$7	\$25	\$26	\$18	\$47	\$124
AU3500VIC	\$10	\$31	\$34	\$35	\$41	\$154
AU5500WA	\$18	\$74	\$36	\$25	\$61	\$215
AUSTRALIA	\$10	\$43	\$29	\$28	\$57	\$169
East Europe	\$11	\$26	\$10	\$17	\$56	\$120
EU	\$13	\$36	\$22	\$33	\$53	\$160
North America	\$16	\$46	\$21	\$13	\$49	\$154
Argentina	\$13	\$41	\$17	\$4	\$34	\$109
Uruguay	\$28	\$46	\$24	\$4	\$62	\$165
All farms	\$14	\$38	\$22	\$25	\$52	\$155

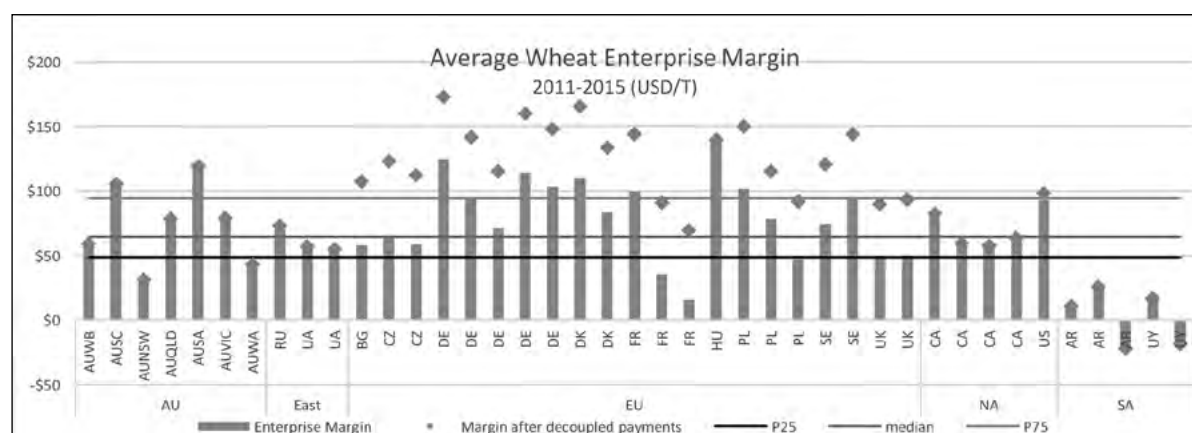


Figure 4. Average wheat enterprise margin (\$US) per tonne of production of wheat for the period 2011 to 2015; including decoupled payments. P25 (low line) and P75 (high line) refers to the 25th and 75th percentile margin, respectively.



East region farms (Russia and Ukraine) have a cost base of \$US120/t which is approximately \$US40/t less than the Australian average. The difference is primarily driven by low fertiliser, pesticides and labour costs. However, wheat prices recorded were approximately \$US60/t less which has eroded some of the competitive advantage.

Enterprise margin

In general Australian wheat profitability compares favourably to farms from Canada, USA and EU. The margin for AUSA and AUSA were within the group of the highest margins at \$US104/t and \$US119/t, respectively (Figure 4).

Profitability was highly variable within the EU group with margins ranging from \$US16/t to \$US139/t. The median profit for the EU group was \$US78/t.

The average profit margin for the North American farms was \$US71/t.

Decoupled payments refer to income that was received independent of production (e.g. subsidies).

Decoupled payments added \$US37/t to \$US59/t to the profitability of the EU farms. This increased the median profit margin to \$US127/t of the EU farms.

Despite having some of the highest production costs and lowest yields in the dataset, the profit margin on the Australian farms was just above the average for the dataset. This is attributable to the relatively high grain price achieved over the period.

Although the South American farms have the lowest production costs they also recorded exceptionally poor pricing for the period resulting in very low margins.

Interestingly, the average margins for the EU, North American and Australian farms are relatively similar (\$US79/t, \$US71/t & \$US73/t). However, when decoupled payments are taken into account the EU farms have a \$US48/t advantage.

Key messages and strategic value

This study highlights that wheat production in Australia tends to be relatively high cost with high levels of yield variation between years compared to other major wheat exporting regions of the world. Australia is not a low cost producer of wheat despite the general large scale nature of the Australian production system.

Despite this, the average wheat enterprise margin for the Australian farms of \$US73/t was above the dataset average and median (\$US67/t and \$US64/t, respectively) and similar to that of the EU and North American farms (\$US79/t and \$US71/t excluding decoupled payments, respectively).

The key strength or advantage of the Australian farms lies in the value achieved for grain sales. Over the five year period of this study the Australian farms achieved the highest average price in the dataset at \$US242/t farm gate. The median price of the dataset was \$US225/t. The EU farms had median prices of \$US238/t and North American farms had median prices of \$US225/t farm gate.

Table 4. Summary of wheat enterprise margin (\$US) per tonne of production.

Typical farm regions	Wheat enterprise margin (\$US/t)				
	Average	25th Percentile	Median	75th Percentile	+ decoupled
AU4000WB	\$57				\$59
AU4500SC	\$104				\$105
AU3000NSW	\$31				\$31
AU1550QLD	\$79				\$79
AU2800SA	\$119				\$119
AU3500VIC	\$79				\$79
AU5500WA	\$43				\$43
AUSTRALIA	\$73				\$74
East Europe	\$61				\$62
EU	\$79	\$58	\$78	\$102	\$125
North America	\$71				\$72
Argentina	\$5				\$5
Uruguay	-\$1				-\$1
All farms	\$67	\$48	\$64	\$94	\$90



This implies that Australian wheat is highly valued and/or Australian wheat (on average) is accessing higher value markets and is achieving some of the best prices in the world. Therefore, expectations of achieving better pricing relative to the general market in the future are probably unreasonable.

One of the key messages from this study is that there is a real need to preserve or protect the existing markets and value of Australian wheat.

Australian farms are unlikely to be able to compete with the low cost of production of the Russian and Ukraine production systems. These areas have fundamentally very low costs for inputs and labour which are not likely to change for some time. In addition, there is the very real prospect of significant productivity gains to be achieved within these regions in the medium term.

While maintaining a continual focus on cost control and yield improvement remains a priority, the main message for the broader industry is that the high value grain price needs to be preserved to maintain competitive profitability, particularly for the lower yielding producers. Medium to low yield typical Australian farms are unlikely to be sufficiently profitable at the average wheat price for the data set.

Contact details

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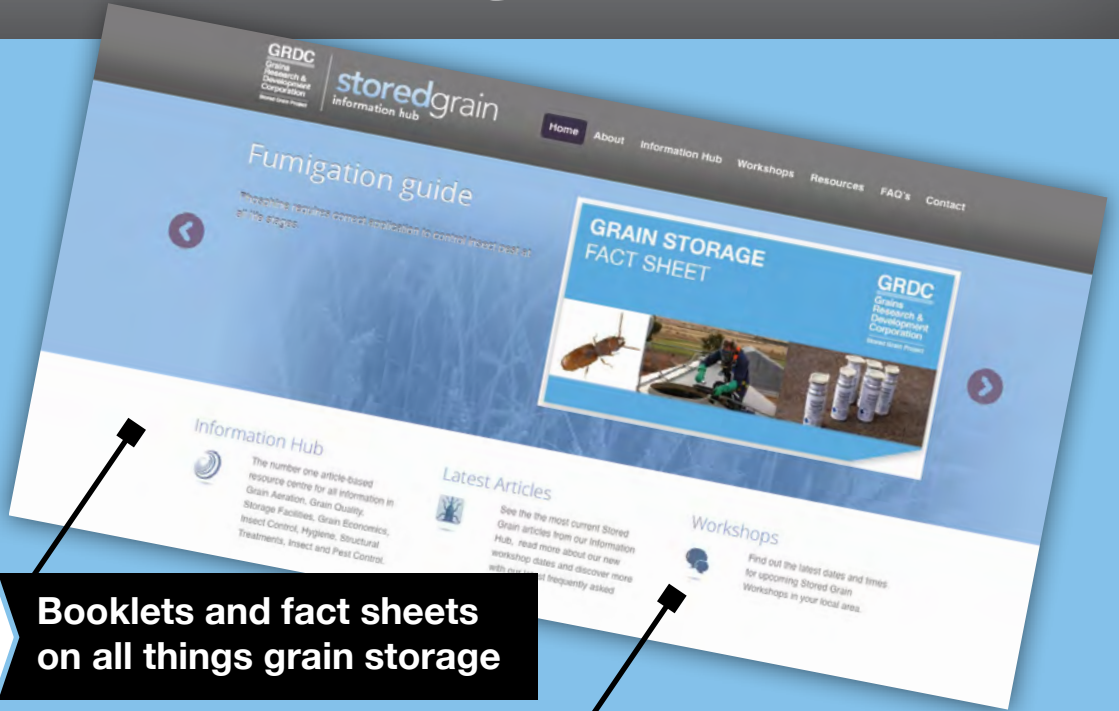
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Risk and enterprise mix

Cam Nicholson.

Nicon Rural Services.

GRDC project code: SFS00028

Keywords

- enterprise mix, risk, volatility, strategy.

Take home messages

- Managing risk is not about the middle or the average, it is the opposite. It is appreciating what happens at the extremes, the size or value of these extremes and how often they occur.
- Understanding the probability of different yield and price values occurring and if these values are correlated is essential in understanding risk.
- Usually diversification reduces risk (both downside but also upside risk).

Introduction

Risk is a natural and accepted part of farming. Australian agricultural production (based on value of output) is the most volatile in the world and the most volatile sector of the Australian economy (Keogh, 2013). This volatility conveys a level of risk that needs to be managed. Given most farmers are still operating despite two centuries of volatility, this suggests that they have developed long term strategies and operational tactics to cope with this ongoing challenge.

There are many strategies farmers use to manage production risk. Diversification in crop and pasture type, enterprise mix, targeting multiple markets and property location are common strategies. So is managing input costs, especially when production and prices can be highly variable.

Understanding risk

When we talk about risk most of us immediately think about the negative consequences if an action goes bad. Dictionary definitions re-inforce this thinking. However this is only one aspect of risk. The word risk is derived from the Italian word *risicare*, which means 'to dare'. To manage risk effectively we need to understand both the downside (the potential harm from taking a risk) and also the upside (the opportunities that taking a risk can offer).

There is no reward without risk. In farming, risk is a necessary part of making returns. Managing risk is about making decisions that trade some level of acceptable risk for some level of acceptable return for an acceptable amount of effort. Decisions can be made to reduce risk, but it usually comes at a price, namely lower returns.

A common definition of risk is likelihood by consequence. In other words risk requires knowing how often an event happens (the frequency) and what is the impact (the value) when it does happen. A decision that increases risk will either increase the likelihood of an event happening and/or increase the consequence if it does occur. This increased consequence may be a greater return, not just a greater loss.

We must remember everyone has a different position on risk. Financial security, stage of life, health, family circumstances and business and personal goals can all influence the amount of risk an individual is willing to take on. This position can change rapidly, sometime triggered by sudden events. Importantly no position is right or wrong, it is what the individual is comfortable living with.

Average values are commonly used in agricultural extension. We present average yields, average prices and average costs. While these averages convey a value (and are convenient), they rarely



present the frequency of this average occurring. This would be fine if we consistently got these average values, but in agriculture we rarely do. The key drivers of profit in agriculture, namely yield, prices and some costs have a range of values within and between production periods. If we use averages for analysis, it usually over estimates the profits and hides the volatility in those profits (Nicholson, 2013).

Managing risk is not about the middle or the average, it is the opposite. It is appreciating what happens at the extremes, the size or value of these extremes and how often they occur.

Analysing risk

As described previously the derivation of risk is 'to dare'. This implies there is opportunity but it also implies a choice. As individuals we can influence how much risk we expose ourselves to by making choices.

Insights from the Grain and Graze program would suggest farmers mainly inform their decisions around risk, based on past experience and intuition or instinct. Doing the 'sums' to understand the likelihood and consequence is much less common.

Through the Grain and Graze program we have developed a relatively simple way to put some numbers around the risk in a farming business. It is based on Excel with an additional program called @Risk (www.palisade.com). Firstly the risky variables in a business are identified. These are inputs that

we have little or no control over at the start of the season and are typically yields, prices and some costs. Graphs are created that show **the amount or value** of this risk and **how often this amount or value occurs**. It includes extreme and more common results and is referred to as distributions or frequency histograms. The broader the range in values, the greater the volatility or risk (Figure 1).

These 'risky' distributions are then substituted for the average values used in calculations. For example we may have used an average price for canola delivered at Adelaide of \$556/t. By substituting this distribution, the program will do some calculations with a price around \$556/t, but will also do calculations with prices at \$450/t, \$500/t, \$600/t and even \$800/t. However the frequency these prices occur will be different. There will be more calculations around \$500/t than around \$450/t or \$600/t and many more than around \$800/t.

The same can be done for yields (and some costs, although most costs increase in price but are not highly variable throughout the season). When the risky yield, price and cost values are combined; they reflect what happens in real life. For example we may have a high yield but poor prices, so our gross income is about average. Less often we will have poor yields and poor prices and conversely we occasionally get high yields and high prices. Adjustments can also be made to link events such as often getting higher prices when yields are poor.

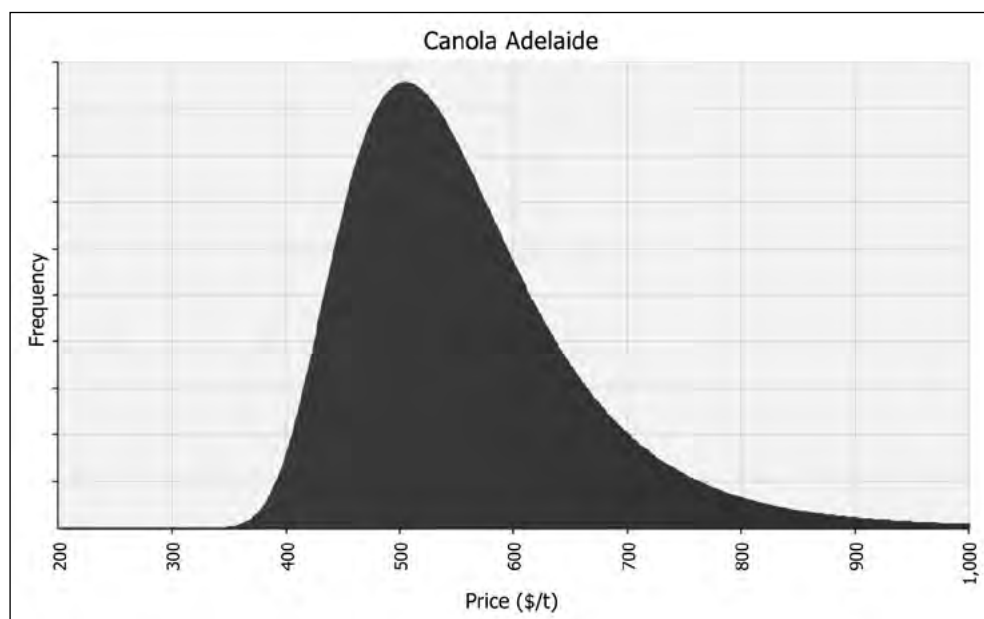


Figure 1. Example of the frequency of weekly prices for canola at Adelaide port from 1 July 2003 to 30 June 2016, inflated to June 2016 values. (www.agprice.grainandgraze3.com.au)



We create these distributions through a combination of historic information ('form guides') and gut feel. I call this 'framing the odds'. Each distribution can be customised to suit your location, soil type, frost risk, etc.

Not all risks are equal. The computer program enables a comparison between the risky variables. For example, we might have a farm with 20 or so distributions but not all of these risks are of equal influence to our final profit. Some create more volatility than others and some are more influential in making or losing large amounts of money. We can identify these and examine the impact because we are able to change them. This scenario analysis is extremely valuable as it enables an understanding of the risk implications of large (and small) changes on the farming business **before** we make the changes.

Correlations

One reason for diversifying enterprises is to 'decouple' price and yield movements. We grow different commodities so if one fails to produce, a different crop or enterprise may still produce something. How strongly yields and prices are linked are referred to as correlations.

Correlations (co- meaning 'together' + relation) can be calculated mathematically. The numeric scale used for correlations is 0 to ± 1 and is commonly

referred to as the 'r' value (or correlation coefficient). If there is no connection or dependence between two variables then it is considered a zero (0) correlation. If one variable exactly follows the size and direction of the fluctuations of the other it is positively correlated and given a value of one (+1). Conversely, if one variable exactly follows the size and direction of the fluctuations of the other, **but in opposite direction**, it is negatively correlated and given a value of one (-1).

The r value can be broadly classified into 'strengths':

- **Strong** with r greater than ± 0.8 .
- **Medium** with an r value between ± 0.5 and ± 0.8 .
- **Weak** with an r value less than ± 0.5 .
- **None** with an r value of 0.

Knowing a weak r value can be just as useful as knowing a strong r value because the weakness implies that there is no connection between the two variables, so they should be considered independent of each other.

Price correlations for common crops and livestock enterprises are provided (Tables 1 and 2).

Correlations can also be easily created between enterprises (www.agprice.grainandgraze3.com.au).

Table 1. Correlation between common crops (July 2003 to June 2016).

	Canola	APW wheat	Malt barley	Feed barley	Lentils
Canola	1				
APW wheat	0.8	1			
Malt barley	0.8	0.8	1		
Feed barley	0.7	0.8	0.9	1	
Lentils	0.3	0.4	0.4	0.2	1

Table 2. Correlation between sheep enterprises (July 2003 to June 2016).

	18u	24u	Trade lambs	Heavy lambs	Mutton	Live sheep
18micron	1					
24micron	0.5	1				
Trade lambs	0.1	0.2	1			
Heavy lambs	0.2	0.2	1.0	1		
Mutton	0.1	0.0	0.8	0.7	1	
Live sheep	0.5	0.5	0.6	0.6	0.8	1



Enterprise mix

Changing the enterprise mix, both in the type and scale of these enterprises changes the risk profile of a business. The following example is for a 1500ha farm in the West Wimmera, but is based on a real farm. The key values are:

- 1,000ha heavy soil, 500ha light soil.
- Typical enterprise mix: 40% wheat, 25% barley, 10% canola, 5% lentils, 5% bean, 15% vetch hay.
- One manager, 0.5 labour.
- Cost reduced by 20% if yield is decile 3 or less (less nitrogen use).
- Cost increased by 20% if yield decile 7 or more (greater nitrogen use).
- \$0.5M debt, 6.5% interest.
- \$1.2M in plant and equipment (depreciation at 10%).

In a second scenario the 500ha of light soil is in pasture and grazed rather than cropped (self-replacing merino ewes at 2.5 ewes/ha).

Distributions around yields, process and costs are created and substituted for average values. This enables a range of values to be generated based on the frequency distributions of each risky input. So rather than just calculating a single profit (after tax) value based on averages, a range of profit values are determined and represented based on the frequency in which they occur (Figure 2).

Figure 2 shows the chances of not making a profit are 44.5%, with only a 6.7% chance of making more than \$400/ha.

While every farm is different some generalisations on the risk of different enterprise mixes can be made (based on analysis of approximately 40 mixed farms across Southern Australia).

Cropping is usually more risky than livestock

This is usually true however, risk also includes an upside as well as a downside risk. If the 500ha of light soil was taken out of cropping and livestock was run on this area instead, then the risk profiles of the two enterprises can be compared (Figure 3).

This example clearly illustrates the contrasting net income distributions for the cropping enterprise compared to livestock. The cropping enterprise is flatter and wider compared with the sheep enterprise, indicating greater volatility in possible profits with the cropping enterprise.

When the two are combined the addition of livestock reduces the volatility in farm profits, although the average income stays roughly the same (Figure 4).

Other conclusions from the enterprise mix include:

- Intensification (say increasing stocking rate) generally increases risk.
- Enterprise diversity usually decreases risk.
- Sheep are usually more risky than cattle.

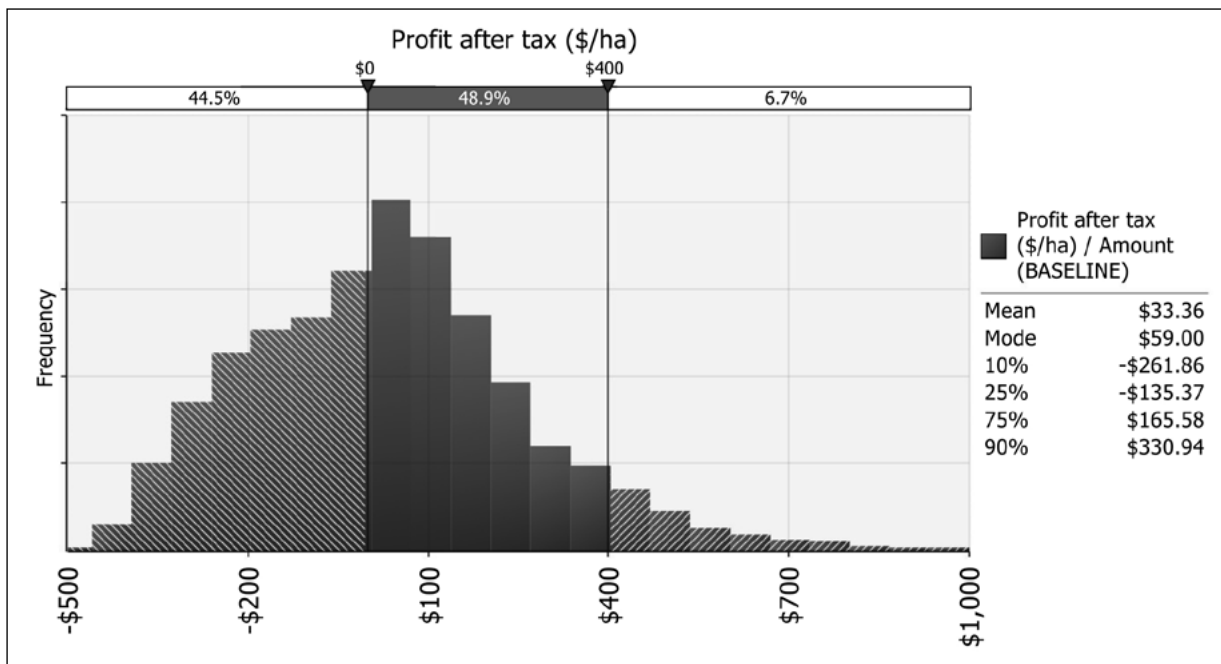


Figure 2. Profit after tax for a 1500ha West Wimmera cropping farm.



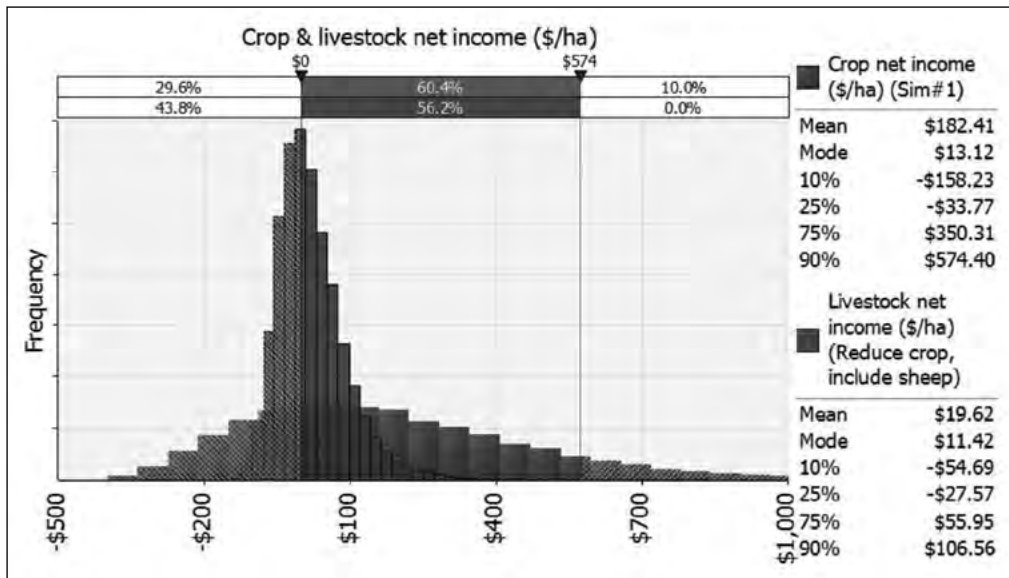


Figure 3. Net farm income from cropping the heavy soil (wide distribution, top numbers in legend) and livestock on the light soil (narrow distribution, bottom numbers in legend).

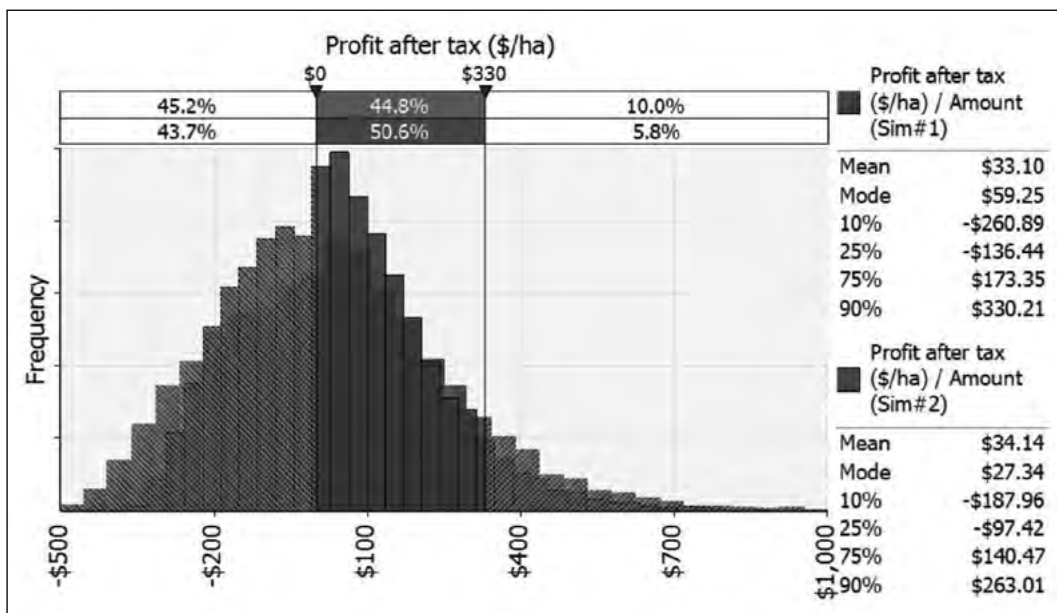


Figure 4. Profit after tax for all cropping (wide distribution, top numbers in legend) compared to 1000ha of cropping and 500ha of sheep (narrower distribution, bottom numbers in legend).

Conclusion

There is no single way to manage production risk. Many 'levers' influence the ultimate risk profile of a business and it is up to the individuals in that business to determine and feel comfortable with a level of risk that matches the rewards they seek.

Having said this, managing risk requires making decisions. The type of analysis used in Grain and Graze provides a very useful platform to inform discussion and decisions around risk.

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- Nicholson C 2013, 'Analysing and discussing risk in farming businesses'. Extension Farming Systems Journal. Vol. 9 (1) Australasia Pacific Extension Network. pp 178-182.



Useful resources

Grain and Graze 3 website
(www.grainandgraze3.com.au)

Acknowledgements

The research undertaken as part of this project is made possible by the significant contributions of growers through their support of the GRDC — the author would like to thank them for their continued support.

Contact details

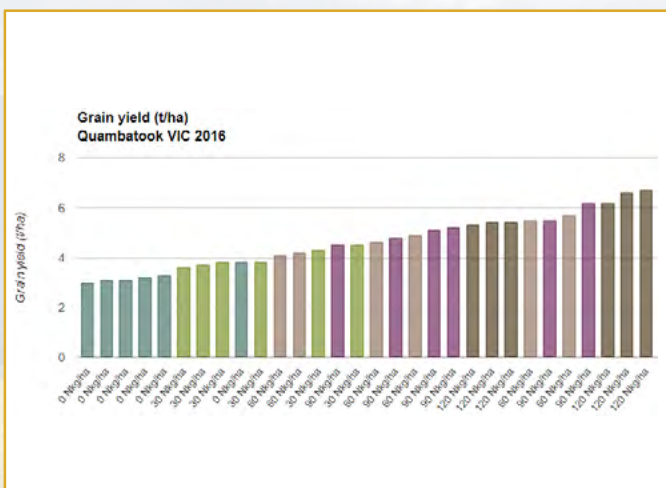
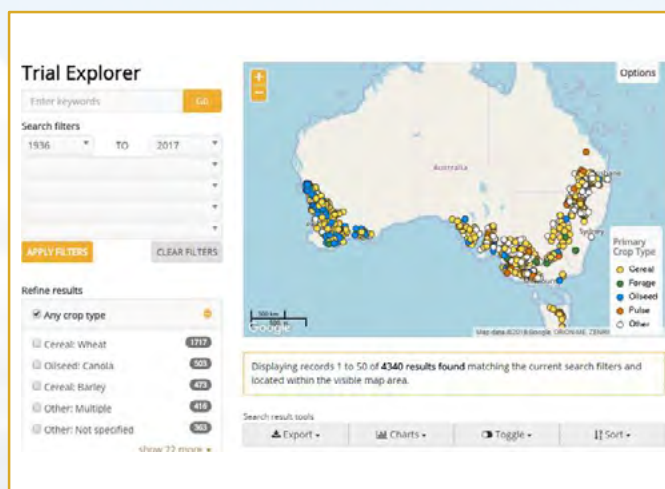
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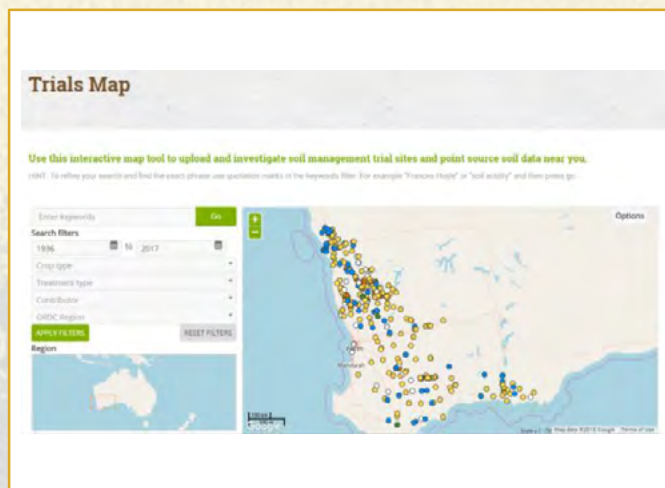


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Choosing and justifying the right sprayer

Brett Symes.

ORM Pty Ltd.

Keywords

- decision making, machinery, spray equipment, efficiency.

Take home messages

- There are many variables to consider when choosing a sprayer, and each will be weighted differently from business to business depending on the farming model utilised, (enterprise mix, farming system, typical rotation, spread of farming operations, etc.), the need or want to optimise efficiency, and availability of labour and lifestyle decisions. Make sure you get the right horse for your course regardless of what the neighbour has.
- Before upgrading the sprayer there may be options to increase overall efficiency of the existing sprayer.
- The capital invested can be similar between a self-propel (SP) and a tow-behind outfit when aiming to match field capacity.
- Alternative uses for the sprayer, and the likelihood of spraying where higher clearance is required, are key determinants in type of machine and cost-of- ownership.
- Tank size and boom width can sometimes be a trade-offs against spraying speed.

Introduction

Choosing the right sprayer and justifying its ownership cost can be a challenging task. There's a lot of variables and trade-offs to consider when making the decision, and the importance of each varies from business to business. The sprayer is often the most used implement on the farm, and therefore, it's important to get the decision right. Taking a structured decision making approach can help take the stress and uncertainty out of making this decision.

Structured decision making approach

Step 1. What spraying tasks and timelines do I need to achieve?

Spraying objectives, or targets around getting the spraying done on time, can vary considerably from business to business. While often not written down, each business usually has a number of 'spraying objectives' they aim for to ensure timeliness of operations. Examples of some spraying objectives include:

- Complete post-emergent grass selective herbicide application early (i.e. before tillering of weeds).
- The ability to spray the area of susceptible cereal crop varieties in three days should a stem rust incursion break out.
- The ability to get clethodim out within a 4hr/day 'window of opportunity' during winter to minimise the effect of frost on herbicide efficacy.
- The ability to apply herbicides during late stages of crop development (crop-top) to any crop type with minimal crop damage and good spray coverage.

Step 2. What will affect these timelines?

Besides physical limitations such as sprayer clearance height, the ability for your spraying outfit to meet your spraying objectives in a timely manner, will be influenced by the 'work rate' of your sprayer inside the paddock and efficiencies impacting on timeliness outside the paddock.



Inside the paddock

Work Rate (Effective field capacity)

The theoretical capacity (ha/hr) of a machine to perform its work whilst in the paddock is defined as:

$$\text{'Theoretical Field Capacity'} = \frac{\text{width of boom (m)} \times \text{speed of travel (km/hr)}}{10}$$

However, we know that there are factors that affect the ability for a machine to operate at its maximum width or speed at all times, while in the paddock. Hence the theoretical field capacity of a machine is adjusted down by a factor known as the Field Efficiency Percentage (FE %), which is the percentage of time the machine operates at its fully rated speed and width while in the paddock. The result is the Effective Field Capacity, or true 'Work Rate' that can be used to assess true productivity in the paddock.

So;

$$\text{'Work Rate' (Effective field capacity)} = \frac{\text{width of boom (m)} \times \text{speed of travel (km/hr)}}{10} \times \text{FE \%}$$

An example is provided in Table 1.

	Units	Example
Boom width	Metres	36m
Spraying speed	Kilometres/hour	25km/hr
Theoretical field capacity	Hectares/hour	90ha/hr
Field efficiency	Percentage	80%
Work Rate (Effective field capacity)	Hectares/hour	72ha/hr

Examples of factors that affect the width or average speed of the spraying unit whilst in the paddock include:

- Water rate limitations (will this limit speed due to inadequate pump capacity, or nozzle size or number?).
- Spray efficacy limitations
 - o Wind
 - o Dust
 - o Technology to allow correct droplet size at increased speed (e.g. AIM Command®, Three Tier System (3TS)®).
- Paddock landform and topographic feature limitations
 - o Soil type and steepness can affect trafficability.

- o Paddock shape, undulation, obstacles (trees, dams, channels, swamps, etc.) and terrain (rocks, corrugations) can all limit speed and width (overlap).

- Overall power, gearing, weight and balance
 - o an underpowered machine will restrict speed
 - o inadequate gearing range can affect speed
 - o is the machine too heavy for the rainfall zone and soil type, hence may sink?
 - o an unbalanced machine may have a restricted speed
- Downtime
 - o Breakdowns, blocked nozzles; could these be eliminated with better preventative maintenance?

Efficiencies impacting on timeliness outside the paddock

With a spraying outfit, there are significant factors outside the paddock that also impact on the overall timeliness of the spraying operation. These factors can often be improved for low cost regardless of which spraying outfit you use.

Examples of efficiencies outside the paddock, and what influences them, include:

- Fill time
 - o Pump and hose size (e.g. 1.5" connection to chemical shuttle =60L chemical/min; 4" water hose faster than 3" > 2", etc.).
 - o Induction technology.
 - o Batching plant (often requires additional labour).
 - o Mounted pump.
 - o Quick fill systems (for example, overhead water loading, nose connector)
- Travel time
 - o Spread of farming operations and/or distance between paddocks.
 - o Road speed (empty and loaded).
 - o Block cropping (less clean-outs).
 - o Distance to fill points (versus a 'nurse tank' could be used to take water to the sprayer instead, however this may require extra labour which will be need to be accounted for).
- Clean out time
 - o Flush technology.



o Block-cropping.

- Tank size – if tank size is matched to paddock size (subject to weight considerations) this can mean less time spent travelling and filling.
- Breakdowns (lack of preventative maintenance?).

Efficiency factors both inside and outside the paddock can be highly variable between farms. Growers should continually ask themselves what could I be doing differently to improve current efficiencies, and therefore, overall timeliness of the operation.

Step 3. What options do I have to achieve my timelines?

The main options as with most plant and machinery is self-ownership, use of contractors, or a combination of the two. The key questions to ask with respect to each include:-

Self ownership:

1. Do you need:

- Alternative uses – am I looking for a dedicated spraying outfit or do I also need a ‘third’ tractor (for example, front end loader (FEL), spreader or chaser tractor), or self-propel (SP) that can be used for windrowing also? An alternative use can effectively subsidise the cost of ownership of a machine.
- Clearance height – what’s the likelihood of needing to spray where higher clearance is required (for example, taller crop types (e.g. canola, sorghum/corn) or late season applications (e.g. fungicides/insecticides/desiccation/crop-topping, late season liquid N)). If likely, are contractors available if you haven’t got the clearance?

2. What can I afford? (refer later section)

Contractor:

Contractors usually come with the latest and greatest machines, which can usually handle all applications and are modern, economically justified machines due to the area that they cover which increases the utilisation of the equipment. Are you confident you can get them in a timely manner and not compromise productivity? Is it cost effective to own your machine? (refer later section)

Combination:

For example, by owning a tow-behind you get the alternative use from the tow-tractor and you can engage a contractor for the high-clearance spraying. The consideration for operations, is can you get the contractor when needed?

Step 4. Ownership & costs – What can I justify?

Table 2 provides a comparison of different types of sprayers. In summary however a few features of each type of sprayer are listed. (Note: Less attention has been paid to truck mount sprayers given the limited number operating):

1. Tow-behind

- Handles most applications.
- Choice of larger tank sizes.
- Clearance issues late in season.
- Multiple alternative uses for towing tractor.

2. Truck or tractor mount

- Fastest road speed full or empty.
- Choice of larger tank sizes.
- Clearance issues late in season.
- Visuals sometimes compromised.
- Limited alternative use.

3. Self-propel

- Great clearance - specifically designed for spraying hence suitable for all spray applications.
- Great traction.
- Best comfort.
- Superior visuals.
- Good road speed.
- Modern technology (for example, AIM Command®).
- Higher fuel use (hydrostat).
- Limitations on tank size.
- Limited alternative use.



Table 2. Comparison of different types of sprayers.

		Tow-behind (and front wheel assist (FWA))	Truck/tractor mount	Self-propel (SP)
Travel speed	Empty	40km (up to 70km)	80km	50km (up to 70km)
	Full	25-30km	80km	30-40km
Working spray speed	Mallee	20km		25km (25-30)
	Mid North	18km		25km
	South East	15-17km		20-22km (20-26)
		Rule of thumb: SP 6kph faster		
Spray applications		Clearance issues late in season	Clearance issues late in season	All (incl. late season fungicides/insecticides/desiccants)
Indicative late season sprays		Depends on farming system, rotation and season. Apply your own probabilities (e.g. Mallee client 8% (insecticide/fungicide in field peas, lupins, canola; desiccate field peas, spray-topping canola and some cereals)		
Traction		Good (FWA)	Good (4WD)	Better (2WD)
Alternative uses		FEL, '3rd' tractor – chaser, spreader	Limited (liquid N)	Limited (liquid N, windrowing - front mount)
Fill time		40min (pers. comm.)		25min (pers. comm.)
Visuals		Good	Good (can be limited by tank and lower seating position)	Great (behind – same as tow-behind; front and down – superior)
Tank size		Most 7-9kL (Up to 10kL)		Most 5 – 6.2kL (Hardi Rubicon now 6,500L. Up to 8kL – Goldacres G8 Super Cruiser – less clearance)
Operator comfort (ride, control, OHS)		Good	Good	Superior
Agility (e.g. backing into corners)		Harder (articulation)	Medium	Easy
Fuel use		10-14L/hr		Hydrostat – 21-25L/hr Mechanical – 10-14L/hr
		Rule of thumb: Hydrostat SP 2 x fuel use		
Other				Cutting tracks – can widen wheels so back track different to front
				Proactive integrated weed management - got it so can do it, don't have to wait for contractors or cost their service

Justifying an investment in a machine is a balance of financial and non-financial considerations.

The primary financial consideration is cost of ownership, which will be influenced by:

- Capital cost (i.e. the loss in value of the machine each year, plus the appreciation in value of its replacement and an allowance for the opportunity cost of the money invested into purchasing the machine which could have been invested via another means). This 'changeover' cost can be 35-40% of the total cost, so keeping it to a minimum has a big influence on overall ownership cost. Factors that affect changeover cost include:

- o Engine hours on trade.
- o Age of trade

Obsolete model or technology.

Access to parts.

Poor condition.

o New technology – the sky's the limit so be critical on what you really need. For example, do I need auto-height, auto-greaser, etc.?

o No-trade discount.

o Factory incentives.

o Exchange rate.

o Poor reputation.

o Poor dealer support.

Some growers have a defined policy around changeover time based on engine hours (for example, 2000 hours), age (for example, 5 years old)



Table 3. Some ‘actual’ variations in capital cost of SP sprayers sold within various regions of Victoria (*Source: ORM Pty Ltd*).

	Wimmera	Western District	North Central
Age (years)	5	4	3.6
Changeover price (\$)	205,000	192,000	142,000
Engine hours	2,000	1,950	2,550
Hours per year	400	488	676
Changeover (depreciation)/year (\$)	42,000	48,000	39,628
Changeover (depreciation)/Eng. hr (\$)	103	98	56

or model (for example, within one model of current model). Whereas others will keep an active eye on the market and buy whenever the price is right (for example, Wimmera grower in Table 3 will upgrade whenever changeover is < \$100/eng.hr).

The full scale of financial benefits of ownership, needs to be evaluated as an offset to the costs, these benefits will be driven by the following factors:

- Field capacity and field and non-field efficiencies, as outlined in Step 1.
- Alternative uses for machine - can ‘subsidise’ the sprayer costs.
- The percentage of spraying needed to be done by contractors.
- Other fixed costs (interest, rego/insurance) – can be up to 25% of total costs which is a big contributor.
- Fuel usage – hydrostat SP can use double the amount of a tow-behind, but overall fuel cost is influenced by field capacity and field efficiency.
- Labour cost – dependent on machine hours.
- Scale – spread of costs (particularly the fixed costs) over area sprayed per annum (\$/ha).

When assessing cost of ownership, it is advisable to compare it to the cost of using a contractor. Once this comparison has been made an informed assessment can be made as to whether ownership is cost-effective. The final decision will however also be impacted by non-financial considerations and the timing of the planned upgrade.

Non-financial considerations include:

- Job satisfaction – the sprayer is the most widely used implement on farm, operator comfort, health considerations (e.g. bad back) should be considered.

- Interest and/or expertise in machinery – sometimes it’s easier to let the contractor worry about ownership issues and access to labour, and get the latest and greatest technology turn up each year.
- Attracting and retaining employees – varies between regions.
- No financial pressure.
- Family time.
- Stress – being able to get the contractors when you want them.
- OHS

Non-financial considerations are harder to quantify than financial considerations. Each grower has to put their own weighting and dollars on these variables depending on their personal preferences.

In regards to timing, sometimes a decision to upgrade can be justified based on a simple cost : benefit analysis, but there may be other immediate priority uses for that capital or existing financial commitments that already limit cash flow. Some useful overall machinery investment benchmarks to consider include:

- Alternative/priority uses for capital – i.e. what other ‘big-ticket’ items are coming due for an upgrade and will investing a certain amount of capital in improving your spraying capacity limit you from getting the balance and timeliness right in other areas?
- Overall capital invested in machinery – ORM benchmarking show that the typical investment in machinery is \$1 for every \$1 of income generated, or a ratio of 1:1. Some businesses can maintain a 0.8:1 ratio without compromising timeliness, which means in a farm business generating \$1,000,000 income, \$200,000 of capital can be invested elsewhere.




- Total (horse) power, machinery and labour cost (TPML) – what is the total annual cost of machinery capital, machinery operating costs (fuel, repairs, contractors), and labour (including your own). A figure under 40% of income is good, under 35% is great
- Cash flow implications – machinery is often financed over five years and too much spent on machinery upgrade all at once can run down cash flow, particularly in a poor income year. Machinery repayments (principal and interest) below 13% of income is generally OK if other key-cost areas in the business are balanced.

Conclusion

Choosing and justifying the right sprayer doesn't have to be a difficult process. Taking the time to fully evaluate what capability you need, and the options and costings associated with achieving that capability, will ensure that you get the right horse for your course.

Contact details

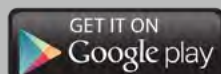
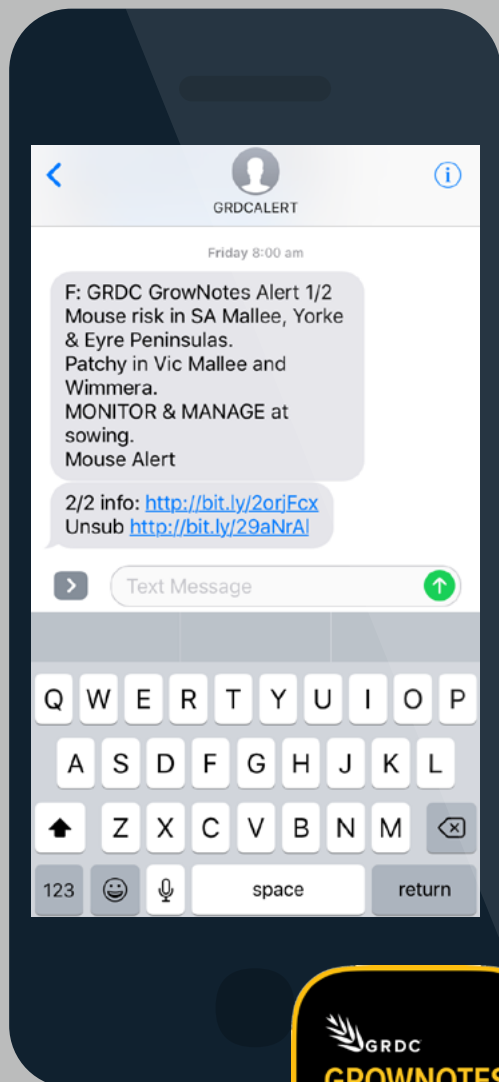
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Farm generational transfer – processes and structures

Stephen Park.

Pacer Legal.

Keywords

- moral obligation, communicating expectations, informed decisions.

Take home messages

- Parents who have invited or allowed their children to participate in the family business have a moral obligation to ensure a succession plan is in place.
- Early and honest disclosure of parties' expectations, reveal if these expectations match reality.
- Understanding business structures is a critical part of succession planning.
- Succession planning isn't only about the transfer of control it includes consideration of exit strategies.

Introduction

After growing up on the family sheep farm in Narrogin and having pursued separate careers, Pacer Legal was founded by Stephen and David Park in 2009.

The decision to go into business together, was done with the full knowledge that we would face organisational challenges that are unique to family businesses. We considered that the decision-making processes we undertook required each partner to consider the emotional and financial expectations of our respective spouses and that our parents, while not business owners, would have a heavy emotional investment in our business succeeding.

Notwithstanding this knowledge and having the opportunity to start from scratch, we have made mistakes and our business processes have evolved over time as we continue to strive to do things better.

In part, we have been assisted in this process by being afforded the opportunity of being involved in succession planning for many of our clients and to see where things have been done well and not so well.

The qualities inherent to successful succession plans can in part be summarised as accepting there is a moral obligation to ensure best practice is adopted, that all parties must honestly communicate their respective expectations and that informed decision-making tends to maintain healthy family relationships.

Elements of succession planning

The elements of succession planning include:

- Structure.
- Communication.
- Legal and accounting.
- Individual requirements.



Understanding the most common agribusiness structures

Informed decision-making can only be made when there is an understanding of existing and proposed business structures.

The most common agribusiness structures that we work with include:

- Partnerships;
- family trusts; and,
- structures that utilise trusts as partners in a partnership.

These business structures interact and are often governed by aspects of legislation such as the Trustee's Act and Partnership Act. Consequently, a working knowledge of the legislative framework should be considered important.

Know your business structures

The starting point for considering succession planning is to break down the business structure itself and clearly identify:

- What entities comprise the farming business?
- How is land held and does this structure affect access to exemptions regarding the intergenerational transfer of farmland?
- How is control held within these structures and how is control transferred should a key person lose legal capacity or be deceased?
- How does debt interact with the proposed succession plan?

Debt and succession

Experience shows us that succession planning can unnecessarily expose incoming children and their families to farm debt.

What is interesting is that this assumption of liability takes place without receiving a commensurate level of control or share in profits and in doing so displays a level of non-commercial behaviour that would not occur when deciding to join a business that comprised of unrelated parties.

This non-commercial behaviour is often overlooked in the excitement of having children enter the family business and sound business practices such as asset protection may not have been considered.

However, good business practice dictates that all parties must make informed decisions and while an informed decision-making process will not ensure a non-commercial decision is not reached, it does at least afford the decision-maker the opportunity to consider all their options and to understand in advance, the potential consequences of their choices.

In fact, it is not a stretch to say you are morally negligent if you fail to comprehensively ensure in advance, that family members contemplating joining the family business fully understand how your business structure works from a control, liability and future succession point of view.

Partnerships

The most common structure adopted by our clients, is that of a partnership.

Advantages

The advantages of a partnership include:

- Opportunity for shared management and joint ownership of assets.
- Profits shared in proportion to equity, unless otherwise agreed.
- Allows for income splitting.
- Simple and cheap to operate.

Major disadvantages

The major disadvantages of a partnership include:

- Partnership law provides that all partners are jointly and severably liable for all the debts of the partnership.
- In summary, this means that a 5% partnership equity holding does not equate to a 5% liability for partnership debts. Rather it equates to a 100% liability for that debt.

The partnership business structure is characterised by informal partnership agreements (i.e. no written agreement) or formal agreement agreements (i.e. there is a deed of partnership which provides a framework of governing rules).

Where a partnership is informal, its conduct and operation are governed exclusively by the Partnership Act and a failure to understand the consequences of not formalising the partnership arrangement can be critical from both a business survival standpoint and for succession planning.



Partners are often unaware that certain provisions in the Partnership Act can be in effect, contracted out of by making alternative provisions in a partnership deed and consideration of the following Act provisions (i.e. make alternative arrangements) is worthwhile:

- The Act provides that a partnership is legally dissolved as at the date of the death of a partner and this can result on a freeze of partnership bank accounts by financiers.
- Under the Act, a partner cannot be expelled by the other partners and this provision can be a problem where a partner loses legal capacity, does not perform to expectations or is bankrupt.

Family trusts

South Australia (SA) is in a unique position, whereby trusts that have a substantial connection with the state of SA can last beyond the maximum legislated lifespan of 80 years that is adopted in other states.

However, this simply reinforces that as trusts have the potential to hold assets for many generations, consideration must be given to how trusts are structured, how control is transferred and how the control of trusts will be managed where siblings or grandchildren assume joint control.

Understanding family trusts begins by acknowledging that assets held in a trust of which you are a beneficiary or an office holder, are not your personal property and cannot be distributed in your will.

These assets are held by the trustee on behalf of the trust's beneficiaries and it is the trustee who is responsible for the day to day operation of a trust and who will make decisions as to which beneficiaries will receive distributions of income.

Usually the trustee holds its position at the absolute discretion of an appointor who holds the power to effectively 'hire and fire' the trustee.

Regarding the qualification of 'usually', each drafter of trusts will include characteristics which are particular to their trust deed and as such, care must be taken to carefully read and consider any trust deed.

For succession planning purposes:

- It is important to ensure that the succession of the office of the appointor will go to the appropriate persons; and,

- depending on trust deed provisions; succession can be done via your will or by formal deeds of appointment (with deeds being the preferred method as wills are subject to challenge under family provision legislation).

Trust considerations for all parties involved in the family farm:

- Does your trust deeds adequately cater for dispute resolution between joint appointors (as putting your children into joint control of trust without the necessary mechanisms for resolve disputes is a failing on your part)?
- Is there an adequate exit strategy in place that will allow a joint controller (i.e. appointor) of a trust to hand over control and exit for fair value?
- What asset protection strategies do trust structures offer and how can these be maximised?

Farm business structures and the Family Law

A common issue that arises in undertaking farm succession, is concerns over how a future divorce or separation will affect the family business.

Often, we are asked to advise on the best strategy to quarantine family farming assets and unfortunately, in our consideration the best strategy is to retain control and engage children in the business as employees.

This advice is based on the propensity of the Family Court to look at who holds the control positions in structures comprising the family farming business and the pattern of income distributions from those structures.

However, this advice is not a practical long-term option and consideration when passing control over can be given to:

- Utilising loan agreements which are on commercial terms and impose a liability to repay monies; and
- Utilising Binding Financial Agreements which children's spouses or defactos can enter (although these face serious practical impediments and tend to have greater effect in the short term).



Farm succession summary

While every succession plan will have its unique characteristics, overwhelmingly the successful succession plan is one based firstly on honest communication of expectations and secondly, on informed decision-making.

While all parties that are part of a succession plan are similarly obligated to partake in honest communication, the responsibility to ensure all parties make informed decisions, falls primarily to those who are inviting or allowing children to enter the family business.

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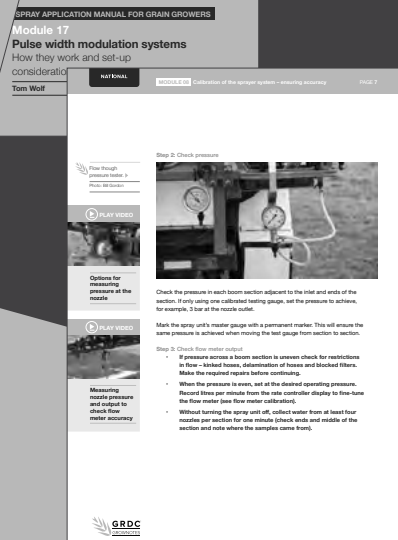
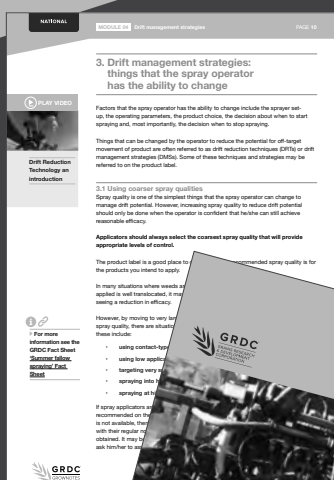




GRDC
GROWNOTES

NEWNEWNEW

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 spray coverage in the field, 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.



GRDC
GRAINS RESEARCH & DEVELOPMENT CORPORATION

THE 2017-2019 GRDC SOUTHERN REGIONAL PANEL

FEBRUARY 2018

CHAIR - KEITH PENGILLEY



Based at Evandale in the northern Midlands of Tasmania, Keith was previously the general manager of a dryland and irrigated family farming operation at Conara (Tasmania), operating a 7000 hectare mixed-farming operation over three properties. He is a director of Tasmanian Agricultural Producers, a grain accumulation, storage, marketing and export business. Keith is the chair of the GRDC Southern Regional Panel which identifies grower priorities and advises on the GRDC's research, development and extension investments in the southern grains region.

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DEPUTY CHAIR - MIKE MCLAUGHLIN



Mike is a researcher with the University of Adelaide, based at the Waite campus in South Australia. He specialises in soil fertility and crop nutrition, contaminants in fertilisers, wastes, soils and crops. Mike manages the Fertiliser Technology Research Centre at the University of Adelaide and has a wide network of contacts and collaborators nationally and internationally in the fertiliser industry and in soil fertility research.

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JOHN BENNETT



Based at Lawloit, between Nhill and Kaniva in Victoria's West Wimmera, John, his wife Allison and family run a mixed farming operation across diverse soil types. The farming system is 70 to 80 percent cropping, with cereals, oilseeds, legumes and hay grown. John believes in the science-based research, new technologies and opportunities that the GRDC delivers to graingrowers. 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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PETER KUHLMANN



Peter is a farmer at Mudamuckla near Ceduna on South Australia's Western Eyre Peninsula. He uses liquid fertiliser, no-till and variable rate technology to assist in the challenge of dealing with low rainfall and subsoil constraints. Peter has been a board member of and chaired the Eyre Peninsula Agricultural Research Foundation and the South Australian Grain Industry Trust.

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FIONA MARSHALL



Fiona has been farming with her husband Craig for 21 years at Mulwala in the Southern Riverina. They are broadacre, dryland grain producers and also operate a sheep enterprise. Fiona has a background in applied science and education and is currently serving as a committee member of Riverine Plains Inc, an independent farming systems group. She is passionate about improving the profile and profitability of Australian grain growers.

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JON MIDWOOD



Jon has worked in agriculture for the past three decades, both in the UK and in Australia. In 2004 he moved to Geelong, Victoria, and managed Grainsearch, a grower-funded company evaluating European wheat and barley varieties for the high rainfall zone. In 2007, his consultancy managed the commercial contract trials for Southern Farming Systems (SFS). In 2010 he became Chief Executive of SFS, which has five branches covering southern Victoria and Tasmania. In 2012, Jon became a member of the GRDC's HRZ Regional Cropping Solutions Network.

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ROHAN MOTT



A fourth generation grain grower at Turriff in the Victorian Mallee, Rohan has been farming for more than 25 years and is a director of Mott Ag. With significant on-farm storage investment, Mott Ag produces wheat, barley, lupins, field peas, lentils and vetch, including vetch hay. Rohan continually strives to improve productivity and profitability within Mott Ag through broadening his understanding and knowledge of agriculture. Rohan is passionate about agricultural sustainability, has a keen interest in new technology and is always seeking ways to improve on-farm practice.

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RICHARD MURDOCH



Richard along with wife Lee-Anne, son Will and staff, grow wheat, canola, lentils and faba beans on some challenging soil types at Warooka on South Australia's Yorke Peninsula. They also operate a self-replacing Murray Grey cattle herd and Merino sheep flock. Sharing knowledge and strategies with the next generation is important to Richard whose passion for agriculture has extended beyond the farm to include involvement in the Agricultural Bureau of SA, Advisory Board of Agriculture SA, Agribusiness Council of Australia SA, the YP Alkaline Soils Group and grain marketing groups.

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RANDALL WILKSCH



Based at Yeelanna on South Australia's Lower Eyre Peninsula, Randall is a partner in Wilksch Agriculture, a family-owned business growing cereals, pulses, oilseeds and coarse grain for international and domestic markets. Managing highly variable soil types within different rainfall zones, the business has transitioned through direct drill to no-till, and incorporated CTF and VRT. A Nuffield Scholar and founding member of the Lower Eyre Agricultural Development Association (LEADA), Randall's off-farm roles have included working with Kondinin Group's overview committee, the Society of Precision Agriculture in Australia (SPAA) and the Landmark Advisory Council.

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KATE WILSON



Kate is a partner in a large grain producing operation in Victoria's Southern Mallee region. Kate and husband Grant are fourth generation farmers producing wheat, canola, lentils, lupins and field peas. Kate has been an agronomic consultant for more than 20 years, servicing clients throughout the Mallee and northern Wimmera. Having witnessed and implemented much change in farming practices over the past two decades, Kate is passionate about RD&E to bring about positive practice change to growers.

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BRONDWEN MACLEAN



Brondwen MacLean has spent the past 20 years working with the GRDC across a variety of roles and is currently serving as General Manager for the Applied R&D business group. She has primary accountability for managing all aspects of the GRDC's applied RD&E investments and aims to ensure that these investments generate the best possible return for Australian grain growers. Ms MacLean appreciates the issues growers face in their paddocks and businesses. She is committed to finding effective and practical solutions 'from the ground-up'.

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2017–2019 SOUTHERN REGIONAL CROPPING SOLUTIONS NETWORK (RCSN)

The RCSN initiative was established to identify priority grains industry issues and desired outcomes and assist the GRDC in the development, delivery and review of targeted RD&E activities, creating enduring profitability for Australian grain growers. The composition and leadership of the RCSNs ensures constraints and opportunities are promptly identified, captured and effectively addressed. The initiative provides a transparent process that will guide the development of targeted investments aimed at delivering the knowledge, tools or technology required by growers now and in the future. Membership of the RCSN network comprises growers, researchers, advisers and agribusiness professionals. The three networks are focused on farming systems within a particular zone – low rainfall, medium rainfall and high rainfall – and comprise 38 RCSN members in total across these zones.

REGIONAL CROPPING SOLUTIONS NETWORK SUPPORT TEAM

SOUTHERN RCSN CO-ORDINATOR: JEN LILLECRAPP



Jen is an experienced extension consultant and partner in a diversified farm business, which includes sheep, cattle, cropping and viticultural enterprises. Based at Struan in South Australia, Jen has a comprehensive knowledge of farming systems and issues affecting the profitability of grains production, especially in the high rainfall zone. In her previous roles as a district agronomist and operations manager, she provided extension services and delivered a range of training programs for local growers. Jen was instrumental in establishing and building the MacKillop Farm Management Group and through validation trials and demonstrations extended the findings to support growers and advisers in adopting best management practices. She has provided facilitation and coordination services for the high and medium rainfall zone RCSNs since the initiative's inception.

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LOW RAINFALL ZONE CO-LEAD: BARRY MUDGE



Barry has been involved in the agricultural sector for more than 30 years. For 12 years he was a rural officer/regional manager in the Commonwealth Development Bank. He then managed a family farming property in the Upper North of SA for 15 years before becoming a consultant with Rural Solutions SA in 2007. He is now a private consultant and continues to run his family property at Port Germein. Barry has expert and applied knowledge and experience in agricultural economics. He believes variability in agriculture provides opportunities as well as challenges and should be harnessed as a driver of profitability within farming systems. Barry was a previous member of the Low Rainfall RCSN and is current chair of the Upper North Farming Systems group.

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LOW RAINFALL ZONE CO-LEAD: JOHN STUCHBERY



John is a highly experienced, business-minded consultant with a track record of converting evidence-based research into practical, profitable solutions for grain growers. Based at Donald in Victoria, John is well regarded as an applied researcher, project reviewer, strategic thinker and experienced facilitator. He is the founder and former owner of JSA Independent (formerly John Stuchbery and Associates) and is a member of the SA and Victorian Independent Consultants group, a former FM500 facilitator, a GRDC Weeds Investment Review Committee member, and technical consultant to BCG-GRDC funded 'Flexible Farming Systems and Water Use Efficiency' projects. He is currently a senior consultant with AGRIVision Consultants.

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HIGH RAINFALL ZONE LEAD: CAM NICHOLSON



Cam is an agricultural consultant and livestock producer on Victoria's Bellarine Peninsula. A consultant for more than 30 years, he has managed several research, development and extension programs for organisations including the GRDC (leading the Grain and Graze Programs), Meat and Livestock Australia and Dairy Australia. Cam specialises in whole-farm analysis and risk management. He is passionate about up-skilling growers and advisers to develop strategies and make better-informed decisions to manage risk – critical to the success of a farm business. Cam is the program manager of the Woody Yaloak Catchment Group and was highly commended in the 2015 Bob Hawke Landcare Awards.

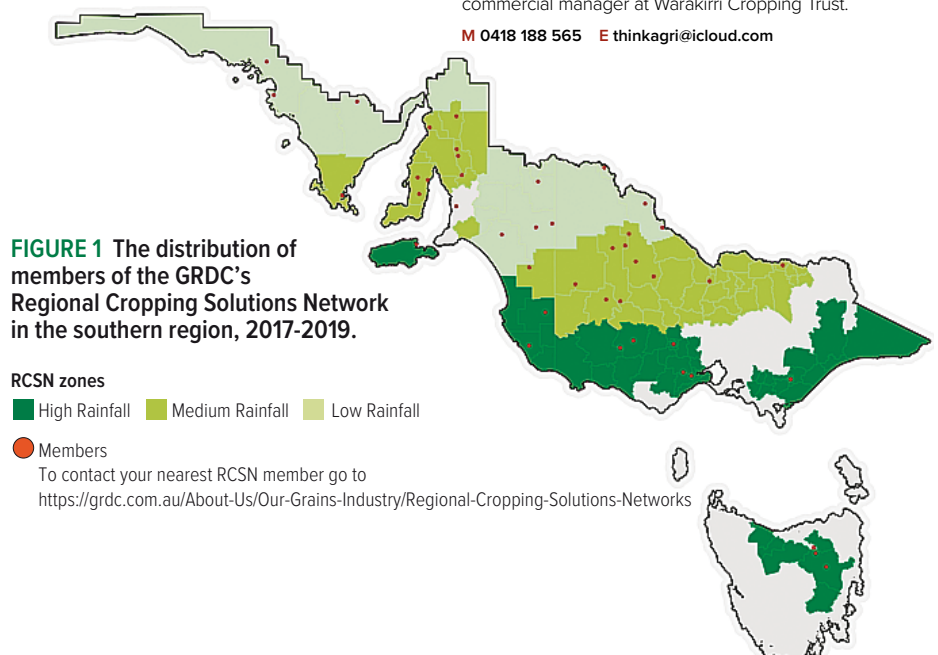
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MEDIUM RAINFALL ZONE LEAD: KATE BURKE



An experienced trainer and facilitator, Kate is highly regarded across the southern region as a consultant, research project manager, public speaker and facilitator. Based at Echuca in Victoria, she is a skilled strategist with natural empathy for rural communities. Having held various roles from research to commercial management during 25 years in the grains sector, Kate is now the managing director of Think Agri Pty Ltd, which combines her expertise in corporate agriculture and family farming. Previously Kate spent 12 years as a cropping consultant with JSA Independent in the Victorian Mallee and Wimmera and three years as a commercial manager at Warakirri Cropping Trust.

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Acknowledgements

The ORM team would like to thank those who have contributed to the successful staging of the Clare GRDC Farm Business Updates:

- The local GRDC Farm Business Update steering committee that includes both government and private consultants and GRDC representatives
- Partnering organisation: Hart Field Site Group





You can now provide feedback electronically 'as you go'. An electronic evaluation form can be accessed by typing the URL address below into your internet browser.

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

- Complete the survey on one device (i.e. don't swap between your iPad and Smartphone devices. Information will be lost).
- One person per device (Once you start the survey, someone else cannot use your device to complete their survey).
- 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.

www.surveymonkey.com/r/Clare-FBU



2018 Clare GRDC Farm Business Updates Evaluation

1. Name

ORM has permission to follow me up in regards to post event outcomes.

2. Location of Update

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

- | | | |
|---|--|--|
| <input type="checkbox"/> Grower | <input type="checkbox"/> Grain marketing | <input type="checkbox"/> Student |
| <input type="checkbox"/> Agronomic adviser | <input type="checkbox"/> Farm input/service provider | <input type="checkbox"/> Other* (please specify) |
| <input type="checkbox"/> Farm business adviser | <input type="checkbox"/> Banking | <input type="text"/> |
| <input type="checkbox"/> Financial adviser | <input type="checkbox"/> Accountant | |
| <input type="checkbox"/> Communications/extension | <input type="checkbox"/> Researcher | |

Your feedback on the presentations

For each presentation you attended, please rate the content relevance and presentation quality on a scale of 0 to 10 by placing a number in the box (**10 = totally satisfactory, 0 = totally unsatisfactory**).

4. **Benchmarking Australian grain growing businesses. How do we compare with businesses around the world: Ashley Herbert**

Content relevance /10 Presentation quality /10

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

5. **Risk and enterprise mix: Cam Nicholson**

Content relevance /10 Presentation quality /10

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

6. **Taking a planned approach to investment in plant and equipment: David Smith**

Content relevance /10 Presentation quality /10

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



7. Farm generational transfer – processes and structures: Stephen Park

Content relevance /10

Presentation quality /10

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

Your next steps

8. Please describe at least one new strategy you will undertake as a result of attending this Update event

9. What are the first steps you will take? e.g. seek further information from a presenter, consider a new resource, talk to my network, start a trial in my business

Your feedback on the Update event

10. Thinking about your experience, how strongly do you agree or disagree with the following statements

	Strongly agree	Agree	Neither agree nor Disagree	Disagree	Strongly disagree
This event has increased my awareness and knowledge of farm business decision-making	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Participating in this event has reinforced or enhanced my industry networks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I know who to talk to, or where to go, to further explore the information that interested me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments

11. Are there any subjects you would like covered in the next Update event?



12. What is the likelihood you will attend an Update event like this in the future?

Very likely

Likely

May or may not

Unlikely

Will not attend

Comments

13. Overall, how did the Update event meet your expectations?

Very much exceeded

Exceeded

Met

Partially met

Did not meet

Comments

14. Finally, do you have any comments or suggestions to improve the GRDC Update events?

Thank you for your feedback.

