The Efficient Use of Capital in Farm Businesses

A report for

by Brendon Tierney

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Foreword

There is a strong tradition of family farming in Australia. Several families in my immediate district have been farming for over 100 years and in my own case, my great grandfather started farming at Walebing, Western Australia in 1912. Whilst by world standards these time frames may not be that impressive, they have been long enough to have fostered a strong affinity with the land and with farming as a way of life.

However farming is also a business and the rules of profit must apply. We must be very mindful of the implications of being commodity producers in a global market place.

The traditional family farm model has served our industry well and no doubt will remain a cornerstone of the industry into the future. Like all business models, the family farm will need to adapt to changing market conditions and continue its track record of innovation.

The ever increasing need for scale and the rising cost of purchasing land, which has been the traditional model for expanding the family farm business, are challenges that must be faced and met.

My Nuffield Scholarship has taken me on a 16 week journey through eight countries and given me the opportunity to study the way farm businesses have evolved under different conditions and how they have coped with issues of scale and rising land prices.

Acknowledgments

There are many people and organisations who I wish to thank for the invaluable contribution they have made in making it possible for me to undertake my Nuffield journey.

To Nuffield Australia, for the work and organisation that goes into making it possible for us to travel the world and experience agriculture on a global scale.

To my sponsor, the Kondinin Group, for their support of the Nuffield program and for their interest in my study.

To all of the people who shared their experiences, hospitality and knowledge with me during my travels. Particularly I would like to thank Danny Klinefelter in the USA, Ian McPhadden in Canada and David Alvis in the UK whose time and efforts really shaped my Nuffield experience.

To all those associated with Planfarm who have taken on additional work and adjusted their schedules to fit in with my travels.

To my parents and my Uncle Cec for their encouragement, support and for all the extra work they have done in order to make sure I was able to get the maximum benefit from this opportunity.

Finally, a very special thank you to my fiancé Catherine for her support, understanding and patience whilst I spent so much time abroad.

Abbreviations

ABARE – Australian Bureau of Agricultural and Resource Economics

bu/ac – bushels per acre

ha – hectare

Contents

Executive Summary

Economy of scale is one of the key competitive advantages of Australian broadacre farms and has been an important driver of productivity gains in this sector. The benefits of scale are reflected in the desire by family farm businesses to continue growing by purchasing additional land as it becomes available.

Over the past decade, land prices have grown at a much faster rate than operating profits. This has made additional purchases of farm land less affordable relative to the income that land is capable of generating. If this trend is to continue, it will slow the rate at which family farms are able to expand through land purchases because it will take longer to accumulate sufficient equity through retained profits and we will have reduced capacity to service debt.

With these trends in mind, the purpose of this study was to analyse the way farm businesses in developed countries (including Canada, New Zealand, the UK and USA) are structured and the way they utilise their capital resources. From this, the aim was to identify opportunities for Australian farm businesses to make better use of their own resources and to find strategies to allow these businesses to cope with the reduced affordability of farm land.

The most important finding from this work was that we must recognise that broadacre farming in Australia is a combination of two businesses: an operational business and a real estate business. We must start thinking of these as two separate activities and begin analysing the performance of each as stand alone businesses. This is essential if we are to be sure that each activity is contributing to our overall financial position in its own right.

Around the world, farm businesses have evolved to capitalise on the relative strengths of their operational or real estate activities and the following recommendations are based upon my observations of these businesses.

1. Leasing land allows you to lever the potentially high returns from an operating business. The short term nature of leasing arrangements in Australia has meant the focus is on short term profits which often come at the expense of medium to longer term returns. Basing lease arrangements on a ‘share of profit’ approach would give both parties the confidence to agree to longer term deals which in turn would lead to a focus on longer term returns and better management of the land asset.

2. We need to focus on the scale of our operating businesses and make sure that we are operating 'scalable units'. Furthermore, when expanding our operating businesses, we need to work within multiples of scalable units if we are to avoid the large costs associated with diseconomy of scale. We need to benchmark the performance of our key operations and use this as the basis for determining optimum scale.
3. Learning to work with other people through joint ventures offers an opportunity to grow our operating businesses without tying up capital in additional farm land. Being prepared to work in a joint venture would also overcome the current lack of land available for lease in Australia. Having a clearly defined set of procedures for startup, ongoing operations and for unwinding the venture is critical.
4. We should continue to buy farm land when suitable opportunities arise. However we should not assume that we should farm that land ourselves simply because we bought it. This is especially the case if it means running an operating business that is not at optimum scale. Being prepared to own land but not operate it also opens the door for farmers to benefit from diversifying into different geographical locations and also into different types of real estate investments.
5. Attracting external capital to invest in agricultural assets will be of benefit to existing operations only if it increases the amount of land available for lease. If we are to attract such capital away from other investments, we need to look at standardising our performance reporting and establish a benchmark index to measure the performance of agricultural investments. These measures would allow more accurate assessment and comparison of existing investments and provide a guide to historical performance for those considering an investment in the agricultural industry.

There are opportunities to make more efficient use of the capital we employ in our farm businesses and the first step in taking advantage of these opportunities is to recognise the two distinct activities that make up the 'business of farming' in Australia.

Introduction

My family runs a mixed farming operation east of Moora in Western Australia and it was through growing up on the family farm that I developed my interest in agriculture. After completing secondary school in Perth, the next logical step was for me to study at Muresk Institute of Agriculture in order to prepare for a career in the agricultural industry.

After graduating I spent seven years working with Planfarm Pty Ltd, a farm business consulting firm. Through my consulting role at Planfarm, I have gained an insight into the financial performance of a range of broadacre farm businesses and the factors that drive their performance. Two of the key lessons from this experience have been the role of better economy of scale in maintaining the viability of these businesses over the years and the need for these businesses to continue growing.

In recent years, I have become aware of a more disturbing trend. Like many other asset classes, farm land prices have boomed in many parts of Western Australia. However, the growth in land prices has not been matched with higher average farming profits.

This led me to question whether the traditional method of expanding the family farm by purchasing additional land as it became available remained the best model for business growth moving forward.

Proportionally more capital is now required to generate the same amount of operating profit. If this trend is to continue, farmers will be faced with a choice. One option is to simply accept the situation and become even further entrenched in the ‘asset rich and cash poor’ scenario. The alternative is to find ways to make more efficient use of our capital resources and thereby increase the rate at which our businesses are capable of growing.

Objectives

The key objectives of my Nuffield Scholarship were:

- To better understand the nature of the ‘business of farming’ in order to identify the key elements driving total business returns.
- To study the way capital resources, especially land and machinery, are utilised in different farming systems in other grain farming regions.
- To identify opportunities for Australian broadacre grain farmers to improve the way they employ capital in their businesses.
- To identify alternative growth pathways for family farm businesses.

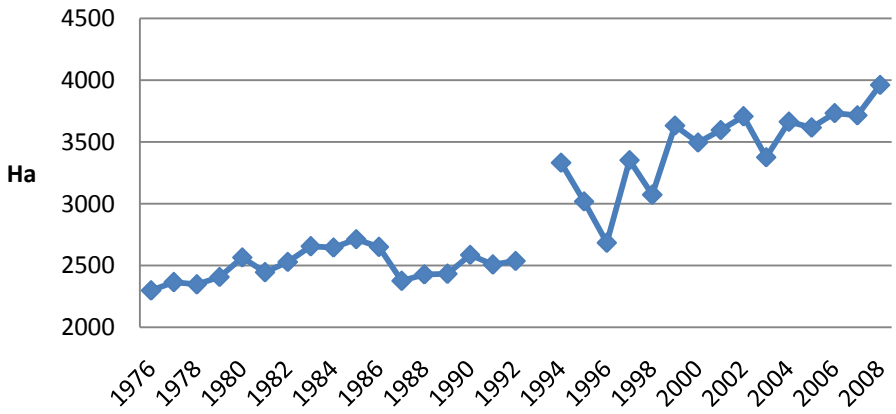
The WA Situation

Farm Productivity

Australian broadacre farmers have defied a long term decline in their terms of trade by making nation leading gains in productivity. ABARE statistics show the average productivity growth for a broadacre farm (which includes cropping, sheep, beef and mixed enterprises) to have been 1.5% from 1977-78 to 2006-07. The cropping subgroup includes wheat and other grain producers and has out-performed the broadacre average achieving productivity growth of 2.1% over the same period (Nossal, Zhao and Gunasekera 2009).

In terms of the cropping operations, as much as three quarters of these productivity gains have come from increasing farm size and mechanisation. The magnitude of some of these changes is evident in the Figures 1 and 2.

Figure 1. Growth in Average WA Medium Rainfall Farm Area 1976 to 2008.

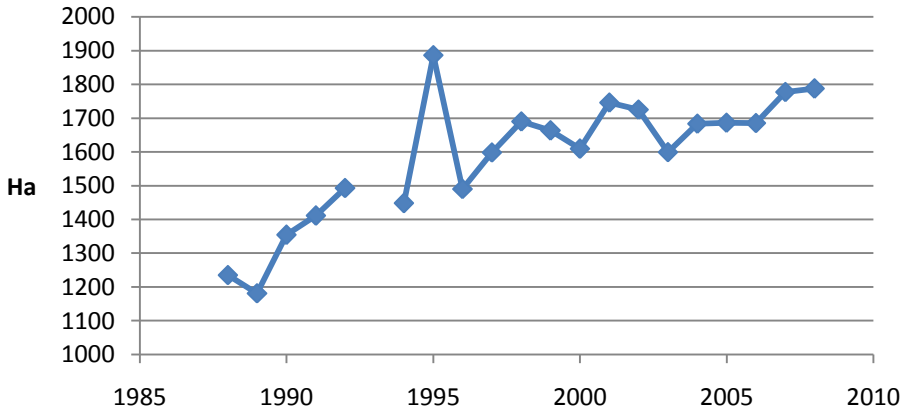


Source: Planfarm Pty Ltd Benchmark Data

Figure 1 shows the average farm area in the north half of WA's Medium Rainfall Region (325-450mm annual rainfall) to have grown from just under 2,300ha in 1976 to almost 4,000ha in 2008.

Similarly, Figure 2 (over page) shows how labour productivity has improved. In 1988, on average one permanent labour unit was required for every 1,235ha of farm area. Twenty years later, the average requirement for permanent labour has decreased to one per 1,800ha.

Figure 2. Increase in Labour Productivity 1988 to 2008.



Source: Planfarm Pty Ltd Benchmark Data

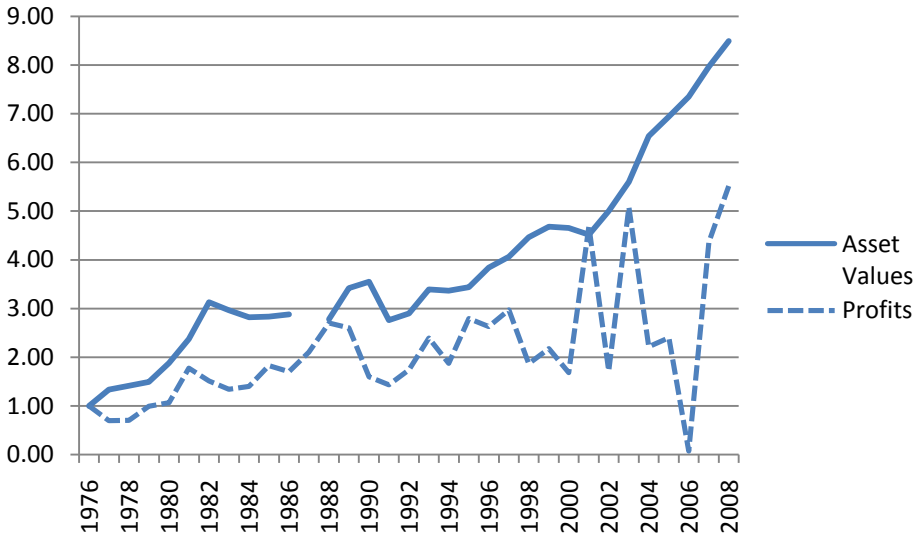
Mechanisation has obviously played a large role in this trend, allowing one person to seed, spray or harvest far more hectares in any given day. The introduction of alternative crops such as canola has also been important as often such crops have a different planting and harvesting window to the cereals. Effectively this increases the amount of time labour and machinery resources can be used for a particular task in any given season.

Whilst productivity growth has been a good news story for broadacre farmers generally, ABARE figures indicate that since the turn of the century, the rate of productivity growth has slowed (Nossal et.al. 2009). Recent droughts do impact upon these figures however the slowing trend also raises questions about whether the major gains from mechanisation have been made. If this is the case, we will need to look for new technologies and methods to keep ahead of the terms of trade.

Trends in asset prices and farm profits

Analysis of benchmarking data for grain farmers in WA reveals two distinct trends regarding asset values and farm profits. Figure 3 shows the movement over time of farm assets and farm operating profit indexed against 1976 levels. Given that on average, 70% of total farm assets are comprised of farm land, reasonable inferences about farm land values can be made from this data.

Figure 3. Index of Farm Asset Values and Operating Profits



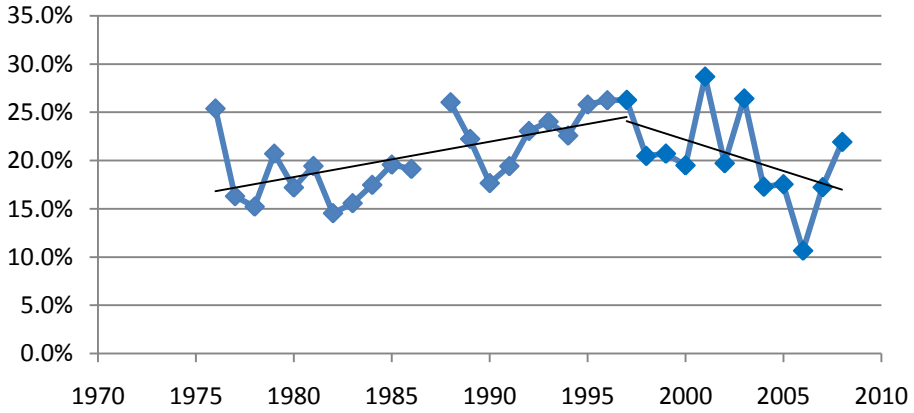
Source: Planfarm Pty Ltd Benchmark Data

It is clear from this data that since 1976, farm assets (and therefore farm land values) have increased at a faster rate than average farm profits. Since the late 1990's, it appears the discrepancy in rate of growth between the two has widened.

The other trend evident is the increased volatility of farm profits in the last decade. Partially this can be attributed to two severe droughts in 2002 and 2006 however these seasonal fluctuations shouldn't be ignored or excused because they have a very real effect upon financial returns in those years.

Figure 4 (over page) is constructed from the same benchmark data and shows gross farm income expressed as a percentage of farm assets.

Figure 4. Average WA Farm Income Expressed as a Percentage of Asset Value.



Source: Planfarm Pty Ltd Benchmark Data

Used as a proxy for farm land affordability, this figure shows that from the late 1970's to around 1997, farm income as a percent of land value was increasing indicating that farm land was becoming more affordable. However since 1997, the trend has reversed with farm land becoming more expensive when measured against farm income.

At this point in time, farm land in WA appears to be holding its value despite the effects of the global financial crisis. In terms of future land price movements, history would suggest that if land is to become more affordable in WA, it would be the result of a stagnation of land values rather than an increase in farm incomes.

Important Concepts

Through my Nuffield studies, it became evident there were two aspects of my research topic that needed defining. These were:

- What is meant by efficient?
- And what exactly is a farm business?

Efficiency

The concept of efficiency is defined in the Collins dictionary as "functioning or producing effectively and with the least waste of effort". Therefore to become more efficient in this context would require increased output from the same inputs or maintaining the level of output whilst using fewer resources.

In a financial context, efficiency also has connotations relating to risk. When constructing an investment portfolio, consideration is given to the mix of assets included in the portfolio because this affects both the long term rate of return as well as the short term volatility. An efficient investment portfolio is one where investments are made in a way where the long term rate of return is optimised for the amount of volatility (risk) from year to year (Painter and Eves 2008).

In the context of a farm business, if operating profits have become more volatile over the past decade (as evidenced by figure 3), it can be argued that farming as an investment has become less efficient because volatility and risk have increased without a corresponding increase in longer term average profits.

What is a Farm Business?

Over the duration of my travels, it became evident that the 'business of farming' involves a combination of two very different activities. One activity is an operational business involving the production of food and fibre products (and potentially fuel). The second is the business of investing in rural real estate. Depending upon where in the world you travel, the degree to which these two activities are combined to form a 'farm business' varies greatly.

In WA, these two activities tend to happen in conjunction with each other. Typically the person who owns the land is also the person using that land in their operational business. If that person ceases their operational activities, then they would most likely also sell their farm land.

Conversely in New Zealand, the USA, Canada and the UK, there are farmers who run an operational business without owning any of their land. At the same time, there are others who are also considered farmers because they own large amounts of agricultural land but take a very limited (or no) role in the operational business utilising that land.

It became obvious that the factors driving success in the operational aspects of the farm business were not necessarily required for success in the real estate business and vice versa. Therefore, if WA farmers are to optimise the returns for both aspects of their farm businesses, they need to start looking at each in isolation as well as a combined unit.

Corn in Iowa, USA. This crop was part of a 12,000ac operation – all on rented ground.

The Operational Business

Around the world there are a number of variations in the way resources within the operational farm business are brought together, which in turn has implications for the return on capital generated.

Land Leasing/Rental

One of the most obvious differences between farm businesses in Iowa and Illinois in the USA and with WA businesses is the high prevalence of leased or rented land.

A study of Iowa farm land ownership and tenancy by Duffy (2008) showed the proportion of land under cash rent or crop share agreements had increased from 42% in 1982 to 59% in 2007. The increase has effectively mirrored the decline in the percentage of land that is owned and operated by the same person. Benchmarking data from the Farm Business Associations in Iowa and Illinois suggests the percentage of rented/crop share land is even higher at 70% and 80% respectively.

Why lease land?

Leasing land offers the opportunity to achieve higher returns on capital compared to the situation where the land is owned by the operator. Table 1 shows how total farm assets can be divided into 'land' assets and 'operating' assets like plant, livestock and working capital.

Table 1. Division of 2008 Total Farm Assets in WA Medium Rainfall Region

Total Farm Assets	$9,315,000
Land & Buildings[(a)]	$7,088,000
Plant & Machinery[(b)]	$1,070,000
Other Operating Assets[(c)]	$1,157,000
Total Operating Assets[(b+c)]	$2,227,000

Source: Planfarm Bankwest Benchmarks 2008-2009

Similarly, the annual operating profit can be divided to show a return to the land assets and also to the operating assets. Table 2 shows the division of the operating profit along these lines and expresses these as a percentage of the relevant asset base.

Table 2. Division of 2008 Operating Profits and Relative Returns on Capital in WA Medium Rainfall Region.

Total Profit	$653,400	Return to Total Assets	7.0%
Land Lease (4%)	$283,520	Return to Land Assets	4.0%
Residual Profit	$369,880	Return to Operating Assets	16.6%

Source: Planfarm Bankwest Benchmarks 2008-2009

Leasing land effectively allows a farmer to isolate the return on operating assets and dedicate his resources to this activity rather than diluting his returns by tying up capital in farm land.

However, the success of this model is contingent upon the return to total assets exceeding the rental paid for the farm land. If the amount of total profit in Table 2 was to halve, then the return to operating assets would fall from 16.6% to 1.9%.

The US leasing experience

I visited a number of farms in Iowa and Illinois (and also Saskatchewan, Canada) where the operation exceeded 10,000 acres and every one of these acres was rented. Typically the length of the lease agreements are very short (one or two years) with rents reviewed each time the lease is renewed. This is viewed as a form of risk management, protecting lessees from high rental rates should profits fall and lessors from low returns should farming profits rise.

Despite the short term length of the agreements, there is not necessarily a large turnover of tenants on rented ground. One farmer I met still rents the first tract of land he rented back in 1976. In order to achieve such long term tenure despite short term agreements, considerable effort is devoted to maintaining a good relationship with the landlord. These efforts included holding an annual 'landowners appreciation banquet', producing a newsletter to keep landowners informed about farming developments, taking photos of operations happening on the land during spring and fall and sending them to the owners of that land. These activities are aimed at strengthening the landowners' connection with the land, making them less likely to sell it. Furthermore, this particular farmer was very open with his landlords in terms of the profits he generates from farming their land, which builds trust. It also reinforces the view that the relationship is about mutual benefit, rather than one party having a win at the expense of the other.

Another farmer who rented most of his land believed he had a 50:50 split between landlords looking for a long term relationship with their tenant and landlords who simply wanted to

maximise their short term dollar benefits. In this case, being seen to be a good tenant (in terms of modern farming techniques etc) was important in maintaining the relationship as was having the financial capacity to pay a high cash rent! (Again the farmer was able to identify from his records the exact amount of profit being earned on each block of land leased).

In addition to working on relationships with individual landlords, security of tenure is also provided via having a large number of landlords. One of the larger operations I visited had more than 60 landlords and only two of them owned more than 1,000 acres of land. This means it is unlikely that critical scale will be lost should one or two key landlords decide not to continue with the rental agreement. Also the availability of alternative rental opportunities means it is possible to replace one landlord with another.

Clearly renting farm land has played an important role in the growth of a number of businesses in Iowa and Illinois however there are some important characteristics of farming in this region that afford these farmers the opportunity to gear their businesses to a very high level. These characteristics are evident in historical data sourced from the Iowa Farm Business Association.

- Yields are stable. Since 1998, the average corn yield in Iowa has averaged around 160 bu/ac with a low of 143 bu/ac in 2001 to a high of 184 bu/ac in 2004. At most these extremes represent a 15% variation on average yields. With a notable exception in 2003, bean yields reveal a similar story where yields are typically between 45 and 55 bu/ac.
- Operating margins are improving. Since 1998, the ratio of gross income produced per $1 of expense has trended steadily upwards from a low of 1.05:1 in 1998 to a peak of 1.60:1 in 2007. It was 1.40:1 in 2008.
- Return on Investment is improving. In the past 10 seasons, the return on total farm assets has not been under 4% and has also trended up to a peak of 12% in 2007.

The implication of these trends is that farmers operating in these areas have a reliable stream of profit giving them the capability to run a business heavily biased towards a return on operating assets (as illustrated in Table 2).

Machinery Ownership

Plant and machinery ownership makes up the second largest category of farm assets for typical WA farm businesses and again it was here where I observed a number of differences in operating structures around the world.

Machinery hire versus ownership

I was surprised to learn how easily large machines like tractors and harvesters could be rented from machinery dealerships in the US, Saskatchewan and even the UK. Similarly, there appears to be a greater capacity within the contracting industry relative to Australia when it comes to operations like seeding, spraying and harvesting.

Many of the larger operations I visited made extensive use of contracting and machinery rental arrangements. Some of the advantages cited from these arrangements included:

- Access to a reliable machine with the latest technology.
- A known/defined cost to the business compared to the unpredictable nature of repairs and depreciation.
- Better matching of capacity to demand. For example being able to call on a number of spray units to complete a job when the timing window is narrow. (This is obviously contingent on being a valued customer of a large contracting business).
- Preserving capital for other investments offering better returns.

Not all farmers took this approach, with some choosing to own all of their equipment. The motive behind this decision was that an 'owner operator' approach meant capturing all of the profit in the production system within the one business. However, any surplus capacity was utilised by doing contract work for other farmers in order to maximise the return from the investment in plant.

Ultimately the difference between those who hired rather than owned their equipment was a difference in focus between return on capital and absolute costs. Whilst all seemed to agree that in most cases owning equipment would be cheaper, it didn't always provide the best return on capital. For example, one farmer chose to hire his machinery in order to free up capital to invest in grain and fertiliser storage facilities which provided better returns for his business.

Machinery cooperatives

The concept of machinery cooperatives originated in Europe and there are now a number of such cooperatives running in the UK. These cooperatives allow members to reduce the cost of their machinery operations by either sourcing or offering machines from or to other members on a contract basis. Two examples of such cooperatives in the UK are the Eastern Machinery Ring and the Borders Machinery Ring.

The Eastern Machinery Ring operates in the south east of England and acts as an intermediary to facilitate the hiring of machinery between businesses. Farmers buy a share in the cooperative and then pay an annual membership fee. Each member of the cooperative registers the equipment (if any) they are willing to hire on a central database. Machinery dealers and hire companies are also members of the ring and are important suppliers of equipment.

Members are then able to contact the ring to request hire of a machine or a contract service. The database is searched and the most compatible provider (based on location and costs) is put in contact with the farmer. The ring charges a 2% commission to both parties for managing the paperwork and ensuring payment via the ring's direct debit payment system.

The general overcapacity of plant in the UK means there is usually an adequate supply of machinery to meet demand in a timely manner. Quite often farmers hiring their own machinery also provide an operator to ensure their equipment is well looked after. The Eastern Machinery Ring also facilitates the sharing of labour between member businesses but takes steps to ensure it is not viewed as an employer due to the complications this would cause with labour laws.

The Border Machinery Ring operates in a similar manner however it has now diversified into acting as a buying group to supply cheaper bulk inputs to members. Each year it brokers the purchase of between 5 and 6 million litres of fuel for its members. It also brokers fertiliser deals and the buying groups now represent almost half of the ring's turnover. The successful operation of a buying group is contingent upon details of the deal remaining confidential within the group. Individual members need to trust the system and cannot break out of the group within the year in order to chase a spot price.

Labour Arrangements

Along with land and plant capital resources, labour remains a key input in all agricultural businesses. Some intensive businesses like horticultural and dairy are able to capitalise on cheap labour from places like Mexico and Eastern Europe. In Australia we have countered the lack of cheap labour through mechanisation and increased scale.

The organisation and productivity of labour is an essential aspect of optimising the benefits derived from mechanisation and scale. During my travels I observed a few key principles involving management of labour that were leading to better productivity.

The New Zealand dairy industry has a tradition of share milking which allows an individual to start working as an employee and over time graduate to earning a percentage of the milk revenue. A sharemilker who buys the milking cows from the owner, provides all of the labour for the dairy and takes responsibility for the daily management of the dairy typically earns 50% of the milk revenue. Studies have shown that these '50:50' sharemilkers are 15% more productive compared to standard employees or sharemilkers receiving a low percentage of the milk revenue.

Similarly, one of the farmers I visited in Iowa approached a former farmer with good production skills to work in his business. After a period of time, the former farmer was offered the opportunity to buy a minority stake in the farming operation and his productivity 'doubled'. He now draws a salary as well as receiving a share of the business profits.

Both cases are examples of the right people being attracted and retained within a business because they were rewarded for better performance and were offered a path of development and growth rather than just a job.

The other important principle regarding employment was the definition of roles within a business and the delegation of authority to allow individuals to complete that role. This becomes increasingly important as the size and complexity of a business increases. It becomes physically impossible for the owner to supervise and direct every employee with every task. From an employee's perspective, a job offering some autonomy and responsibility should prove more attractive to the 'right' employee for that business.

Joint Ventures

There are a number of business operational models in the UK ranging from 'owner operator' to 'rent it all to someone else'. Sitting between these extremes are joint venture operations which epitomise the principles discussed to date, namely:

- Separation of land ownership and operation.
- A focus on the operational business.
- More efficient machinery operations through improved scale and contracting arrangements.
- Definition of roles within the business and division of responsibility allowing people to work together for mutual benefit.

Whilst specific details vary for each operation, a joint venture typically involves two or more land owner/operators working together to manage their joint holdings with one set of plant and equipment. In some cases, a third entity is established to provide contract seeding, spraying and harvesting services at cost to the businesses run by the individual partners. In these cases, each partner in the joint venture continues with their individual grain growing businesses which benefit from the cheap contract operations.

An alternative to this model is to include the grain production business with the machinery ownership in the joint venture entity. The joint venture pays a rent to each partner for the use of their land and profits from the operation of the joint venture are distributed at the end of each season. The advantage of this model is that it takes away the issue of 'do we seed <u>your</u> crop or <u>my</u> crop first?' and replaces it with 'which part of <u>our</u> crop will we seed?'

Jamie Gwatkin is a consultant to the Joint Venture Farming Group in the UK. His role is to facilitate the formation and ongoing management of various joint ventures. As part of that role he acts as chairman for a number of joint ventures to ensure good governance and that operating protocols are followed. Based on his benchmarking of numerous joint ventures, Jamie estimated that on average, individual farmers are able to save up to £100/ha through more efficient labour and machinery use. Some of the other advantages arising from joint ventures include: a release of capital to invest elsewhere, greater financial control and discipline, greater scope for an individual to spend time away from the business and a wider range of ideas from having a management team.

A successful joint venture requires the right mix of people, with the right attitude, operating within a well defined framework. The operating procedures must deal with all aspects of the joint venture's operation including an exit strategy. Whilst these conditions are not always easily met, the willingness to work with other farmers has brought substantial rewards to UK farmers.

Joint ventures in the UK allow farmers to reduce machinery and labour costs through better operating scale.

The Real Estate Business

Who Am I?

"I am the basis of all wealth, the heritage of the wise, the thrifty and prudent.

I am the poor person's joy and comfort, the rich person's prize, the right hand of capital, the silent partner of thousands of successful people.

I am the solace of the widow, the comfort of old age, the cornerstone of security against misfortune and want. I am handed down through generations, as a possession of great value.

I am the choicest fruit of labour, the safest collateral and yet I am humble. I stand before every person bidding them know me for what I am and asking them to possess me.

I am quietly growing in value through countless days. Though I may seem dormant, my worth increases, never falling, never ceasing. Time is my aid and the ever increasing population adds to my gain. I defy fire and the elements, for they cannot destroy me.

My possessors learn to believe in me and invariably they become envied by those that have passed me by. While all other things wither and decay, I alone survive. The centuries find me younger, always increasing in strength. All oil and minerals come from me. I am the producer of food, building materials and the home to every living thing. I serve as the foundation for homes, factories, banks and stores.

I have not been produced for millions of years yet, I am so common that thousands, unthinking and unknowingly, pass me by".

"Who am I? I am Land."

Anonymous.

The above text was on display in one of the offices of a land investment company I visited in New Zealand. It could easily be re-titled 'The Farmers Creed' in that it reflects the intrinsic value that is attributed to owning land and farmers have been some of the main beneficiaries of accumulating land over the decades.

Based on this experience, the decision to purchase land is often underpinned by the expectation that the intrinsic value of land will cause its price to continue to rise into the future. Consequently, the economic hurdle before committing to a land purchase often relates

more to 'affordability' rather than an expected rate of return from the operating profit derived from the extra land. This affinity with acquiring land was certainly not unique to Australia.

Drivers of Land Prices

There are numerous factors driving land prices around the world with not all factors applying to all markets.

The UK

The UK farm land market was the most complex market and also the one that appeared to have the weakest links with underlying farming profits. According to the University of Cambridge's Farm Business Survey 2007/08, gross income (before the single farm payment) for cereal cropping farms averaged a record £809/ha which was £200/ha higher than the previous season. During that time, arable land prices peaked at around £6,000/ac (£14,800/ha) meaning gross farm income represented only 5.5% of the land value.

Clearly there are other factors driving the farm land market as evidenced by the fact that in the first half of 2009, only 62% of farmland purchases in the UK were made by farmers. 'Non farming individuals' accounted for 25% of farmland purchases (RICS, 2009).

Several factors appear to be driving demand for land over and above what agricultural production would suggest. This is after taking into account the EU subsidies which were quickly capitalised into land values.

The first is the tax system. Farm land is given preferential treatment in that it is exempt from inheritance tax which can be as high as 40%. This provides a strong 'wealth protection' incentive for wealthy individuals to store their wealth in agricultural land as a tax shelter. One farmer commented that land prices in his area had been driven by three non-farming individuals who were prepared to pay "anything" to buy farm land.

The second factor is the understanding that land in the UK is a finite resource meaning that with a population of 61 million, there are simply more people competing to own the land. (There are over 250 people per km^2 in the UK compared to 2.7 people per km^2 in Australia). This is exacerbated by the strong heritage of land ownership which stretches back over many centuries.

The third factor driving demand comes from speculative interests tied to development. Due to the expansion of cities and towns, arable farm land could change in value from £6,000/ac to

over £1m/ac by a change in land zoning to urban or industrial use. Again the density of the population means these opportunities arise more frequently.

Smiths Gore is one of the major land agents in the UK. They have developed a model incorporating six factors correlated with farm land prices. These include farm profits, house prices, interest rates, average earnings, share prices and inflation. Interestingly, farm profits are negatively correlated with farm land prices however this is suspected to be a lag effect due to the short term volatility of farm incomes and slow timeframes associated with land sales. The other factors highlight the importance of the non farming sector in driving UK land prices.

US Corn Belt

At a statewide level, Iowa farm land values appear to be more closely correlated to farming incomes. Benchmark data from the Iowa Farm Business Association shows that farm incomes in Iowa averaged up to $950/ac on land with an average value of $3,100/ac. On this analysis, farm income represents a favourable 30% of land value.

The Iowa State University publishes a survey of farm land values and concluded the average price for farm land in 2008 was higher at $4,400/ac. However even at these higher prices, farm incomes amounted to over 20% of the land value. Given the apparent closer ties between farm values and profits, it was not surprising to learn that grain prices, input costs and interest rates were key factors identified in the survey as driving land values. Existing farmers accounted for 69% of the land purchased with investors making up a further 24%.

Sergio Lence, a professor at Iowa State University, has analysed Iowa farm land values tracking back to 1900. This research listed three key drivers of farm land values. The first was farm land's role as an input in grain production. The second source of value comes from its ability to satisfy consumption demands (eg rural residences, recreational sites etc). The third source of value is as a store of wealth and as a source of long term income (eg from renting).

In analysing Iowa farm land as an investment, Lence (2000) found the total nominal rate of return was a function of real income plus real appreciation plus inflation. Real income was the most important and least volatile contributor to total returns averaging 5.4% from 1900 to 1999. Inflation contributed 3% and the real rate of capital appreciation was only 1.3% with the latter also being the most volatile contributor.

During the time period analysed, there were two extended periods of decline in land values. The first was from 1920 to 1933 and the second was from 1981 to 1986 with the drops in nominal land values being 73% and 63% respectively. This work highlights the fallacy of assuming that farm land prices "never go down". It also shows how inflation can lead to the illusion of better returns from capital gains than is actually the case.

At present, farm land values in the US corn belt would appear to have escaped most of the effects of the financial crisis. Low interest rates and manageable debt levels have meant that there haven't been any forced sales of land which are the usual precursor to falling prices.

New Zealand

The New Zealand land market is another example of how government policy has a bearing on land prices. The absence of capital gains tax was the most commonly raised issue when discussing land investments. Other common factors influencing land values included competition from alternative uses (especially the ability to develop a farm from a cropping operation to a dairy unit) and the desire to accumulate more land because of its intrinsic value.

Unlike the US experience, New Zealand dairy farmers have experienced a decline in land values over the past twelve months. In the South Island, the consensus opinion is a 20%-25% reduction in values from their peak. The drop in values has been precipitated by a 40% reduction in the milk price this year in conjunction with high levels of farm debt (typically business equity levels of less than 50%).

Saskatchewan

Saskatchewan is perhaps one of the few parts of the western world where land purchases can be justified on the strength of cashflow alone. Gross incomes are typically in the range of $250-$300/ac with land prices between $650-$750/ac meaning an asset turnover of 40%.

However the reason this opportunity has arisen is the provincial government's controls over land ownership. Up until 2003, the only people permitted to buy Saskatchewan farm land were Saskatchewan residents. At that time, the legislation was relaxed to allow Canadian residents to purchase the land. These controls over land ownership are widely touted as the reason for land prices remaining so affordable relative to farm incomes.

Investing in Farm Land

Around the world, there are a number of companies which have identified farm land as a quality real estate investment and through their operations are facilitating the investment of non-farming capital in farm land.

HAIG and UBS Agrivest

The Hancock Agricultural Investment Group (HAIG) and UBS Agrivest are similar style funds operating predominantly out of the US. Both are investing funds into agricultural assets on behalf of institutional investors like insurance and pension funds. Between them they have over US$1.5b invested in row, permanent and annual crop land and they manage over 320,000 acres.

Income is a key focus of both funds because they need ongoing cashflow to fund future redemptions (especially for the pension funds). Consequently, the investment portfolios are biased towards permanent crops, like almonds, because these provide much higher annual incomes. The benchmark index shows a 15 year annualised income of 9.2% and 5% for permanent and annual crops respectively. However the combined return from income and capital gains for both crop types was 11.5%.

UBS take a relatively passive role in the management of their investments, choosing to rent all of their land to local producers. They target their investments in regions and industries where they feel a long term sustainable rent of 5% can be earned across the portfolio.

HAIG's operations are more complex in that they also invest in farm land outside of the USA (including Australia and Canada but not in emerging markets like Eastern Europe and Brazil). HAIG also actively operates its portfolio of permanent crops but rents its annual crop land.

There is considerable 'industry infrastructure' in place that gives such large investors the confidence to invest their capital with companies like UBS and HAIG. This is important because UBS and HAIG are competing with numerous alternatives for the investor's capital.

The National Council of Real Estate Investment Fiduciaries (NCREIF) produces a farm land index reporting on the income and capital gain from agricultural properties. Data for the index is supplied by HAIG, UBS and two other investment firms. The index provides investors with a benchmark to see how their individual investments in agriculture are comparing to industry averages. It also serves as an important indicator of potential returns for those considering an investment in the industry.

The other important piece of 'infrastructure' was the property management firms which facilitate the day to day management of investment properties – especially where tenants are involved. According to HAIG, the property management industry in Australia is not as mature as the ones operating in the USA and UK. Consequently meeting the demands of investors for performance reporting etc is more difficult.

Assiniboia Capital Corp.

Assiniboia Capital Corp is based in Regina, Saskatchewan. It developed the 'Farmland Investor' project to facilitate investment in Saskatchewan farm land and take advantage of an arbitrage situation that had developed. Controls over land ownership meant Saskatchewan farm land was trading at half to two thirds the price of comparable land in neighbouring Manitoba and North Dakota. The relaxation of these controls was the catalyst investors needed to take advantage of the relatively cheap land. The fund has since raised over CAN$45m and owns more than 80,000 acres throughout the province.

The vast majority of the land in the fund is rented to local farmers. Approximately 80% of the tenancies are a fixed cash rent running for a period of 3 to 5 years. In cases where Assiniboia has a good relationship with the tenant, crop share agreements have been implemented.

The other type of rental agreement used is a 'variable cash rent' (VCR). The VCR has a fixed component and a variable component which is indexed to a basket of grain prices. The introduction of the VCR has meant longer term lease agreements have become feasible because investors can benefit from rising grain prices within the term of an agreement. This is important given the long term implications of a growing world population and shrinking arable land base.

On average, the relatively low value of Saskatchewan farm land compared to operating profits means Assiniboia can charge tenants a rental of over 8%. This compares very favourably with the recent term rents of less than 5% being reported by the NCREIF Farmland Index for annual cropping land.

New Zealand Rural Property Trust and AgInvest

Whilst agricultural investments in the US and Canada were focused on yield, investments in New Zealand were driven more by capital gain.

The New Zealand Rural Property Trust (NZRPT) began operation in the late 1980's. Modelled on the Australian version, it was a management company set up to invest in farm land and rent that land back to farmers.

The majority of land acquired by the NZRPT was bought in the late 1980's after the stock market crash and at a time when NZ farmers were struggling financially with a newly deregulated dairy industry and high interest rates. The trust purchased land from these farmers at a 20% discount to the market rate (which was already discounted) on the basis that the land would be rented back to the farmer for a 15 year period with first right of refusal to buy the land back at full market price. The stigma associated with being seen as the one who 'sold the farm' motivated many farmers to agree to these terms.

Financially the trust performed very well whilst there was a supply of discounted farm land to purchase. Units in the trust were showing returns in excess of 18% pa. However, over time the market conditions and the operation of the trust has changed.

It is more than 10 years since the NZRPT last bought property and the focus is now on managing its existing portfolio. Strong capital gain in the NZ land market has seen the net assets per unit grow from $2.61 in 2004 to $4.60 in 2008 (the latter figure does not reflect recent decline in NZ land values). Despite these impressive gains, the trust made a distribution of only 3.8c per unit due to the low cash incomes generated by the properties. The lack of cashflow is one of the main reasons behind the trust not purchasing additional land.

Another firm, AgInvest, has traditionally operated in the NZ dairy industry with its core business being facilitating the formation of equity partnerships. Under these partnerships, a number of equity investors (quite often existing dairy farmers) are matched up with a sharemilker to purchase and run a dairy farm.

AgInvest target properties with development potential that, with an improvement of management practices and an injection of capital, are likely to show greater growth in value than the average of the market. Similar to the joint venture operations in the UK, these equity partnerships are structured with very clear agreements detailing start up procedures, ongoing operations and an exit strategy and time frame.

Diversifying With Farmland

A number of studies have been conducted looking at the role farmland can play in diversifying an investment portfolio. One of the unique characteristics of farmland is that its performance as an investment is not correlated with other more traditional asset classes like shares and bonds.

Painter and Eves (2008) studied the effects of including farm land in a broader investment portfolio. Based on the performance of Canadian, Australian, New Zealand and US farm land from 1990 to 2005, they have concluded that as an asset class, farm land offers moderate returns with lower risk compared to the stock market. The implication of this is that risk adjusted returns for investors with a 'moderate' tolerance to risk can be improved by investing in farm land.

Nartea and Webster (2008) approached this concept from the opposite end of the spectrum and asked whether farmers could benefit from investing in non farming assets. The time period under review ran from 1966 to 1996 and during this time farm land produced higher total returns than all other asset classes including shares (which is in contrast to what was observed by Painter and Eves). The conclusion from this work was that a risk averse farmer could reduce the variability of annual returns by investing in other asset classes but it would come at the cost of lower total returns.

Both of these studies highlight the importance of diversification in any investment portfolio for those looking to reduce the volatility of annual returns.

Recommendations

Based upon my observations of the workings of farm businesses in various parts of the world, I believe there are six key areas where farmers can make more efficient use of their capital.

Separate the Ownership and Operation of Land

It is essential that we separate the real estate and operational components of farm businesses and analyse the performance of each separately as well as their performance as a combined investment.

All of the farming businesses I visited were either operational businesses, real estate businesses or some combination of the two. Where individual businesses sat in this spectrum was governed by the relative performance of each component. In the extreme cases, this meant some farm businesses were all operational whilst others were all real estate.

In Australia, the real estate and operational businesses have complimented each other well over the years and there is no reason why this should not continue into the future. However, analysing the performance of each component separately would allow individual farmers to identify whether their mix of operational and real estate activities is delivering the best financial outcome.

Base Land Rentals on a Share of Profit

Leasing additional farm land represents an opportunity to improve a business's return on equity and this is certainly the experience of many farmers in various parts of the world. Leasing offers many opportunities to Australian broadacre farmers however a number of factors should be taken into account in establishing a leasing arrangement that is beneficial to both parties.

Lack of security of tenure is a concern because it forces lessees to act according to short term interest which is to the long term detriment of both lessee and lessor. In the US, the relationship that develops between the two parties over time provides some security and the fact that such relationships have developed is perhaps a reflection of the maturity of the rental market in the US relative to Australia.

Australian broadacre farmers deal with much greater income volatility from year to year compared to their US counterparts. Consequently lessees take on much higher risks with fixed price rental agreements because there is a real risk they will not earn any profit after

paying the lease. Traditionally Australians have managed this risk by using their own equity in farm land as a buffer to absorb operating losses from any given season.

Ultimately leasing land needs to be a mutually beneficial exercise for both lessee and lessor. The obvious solution to the above issues is to structure lease agreements so each party receives a share of profit from year to year as opposed to a fixed cash rent. Crop share arrangements and variable cash rents indexed to grain prices are two working examples of this approach.

A share of profit approach would mean lessors have greater confidence to agree to longer term deals knowing that they won't miss out on higher returns should underlying farm profits change over the timeframe of the agreement. They also benefit from a lessee who has incentive to manage the land in a way that short and longer term profitability is optimised.

The benefits to the lessee would include much needed security of tenure and reduced risk from the fact that their rental payments will be reduced in years when operating profits are poor.

Focus on Scale

Another advantage of isolating the operating performance of Australian farm businesses is that it would bring greater focus to the issue of optimum operating scale. Whilst the 'get big or get out' approach of previous times had merit, it ignored the reality of scalable units.

In the UK, optimum scale is governed by harvesting capacity and other machines are grouped accordingly. Similarly, the large dairy operations are based upon multiples of scalable units. In this case, the size of one unit is dictated by the number of cows that can be milked three times per day in an 80 stall rotary dairy.

This concept is widely used outside of primary production. Fast food chains are a classic example where the number of cash registers in a store is governed by the capacity of the kitchen. If there are large numbers of people waiting on a regular basis, they don't install an extra cash register, they build a whole new store across the road!

Benchmarking operations in the UK has played a critical role in quantifying the benefits that can come from working with optimum scale. Australian farmers should look to a similar process to identify the optimum scale for their own operations.

In terms of future business growth, we must be mindful of what the scale implications are of taking on additional land. The financial costs of expanding to 1.5 times a scalable unit can be great because you have 1.5 units of income but the full costs of running two units.

Learn to Work with Other People

The ability and preparedness to work with other people was a critical factor in improving the operational performance of many UK farming operations.

Presently in Australia, the absence of a ready supply of rented land means the most common way to expand an operating business is by purchasing additional land. This method of expansion requires large amounts of capital and limits the rate at which businesses can grow to their capacity to fund such expansion. Business expansion is important if we are to maintain our competitive advantage in scale. We can do this only by fully utilising the ever increasing capacity of new machines and diluting the higher costs over a larger area.

The alternative for Australians is to learn to work with other farmers in joint ventures and collaborative arrangements thereby allowing operational businesses to achieve better scale without the need to fund capital intensive purchases of land. This is also likely to lead to greater productivity from total labour inputs across the industry.

Working with other people will require us to give up control over certain aspects of our operations and make us accountable for our actions. This will not be an easy transition to make for many farmers who over the years have become fiercely independent. However the reward for learning to work with others will be better scale and consequently better profits.

Don’t Stop Buying Farm Land

Australian farmers have benefited greatly from purchasing farm land over many decades and at worst, land has proved itself to be a very sound hedge against inflation in the long term. The equity Australian farmers have in farm land has served as an important buffer against fluctuating profits and as a source of collateral to fund ongoing operations. Providing that additional land investments are affordable for the business, I believe farmers should continue to purchase land if and when suitable opportunities arise.

However, following on with the concept of separating operational and real estate decisions, farmers shouldn’t assume that they are the ones best positioned to operate the additional land. This particularly applies if the additional land would mean running an operating business that is no longer a scalable unit.

The other major advantage with not being committed to operating all of the land purchased is that it opens up the possibility of buying property in other regions (including non-agricultural ones) which would deliver major diversification benefits. The success of real estate businesses like the NZ Rural Property Trust and Assiniboia Capital Corp in Saskatchewan has been largely driven by taking advantage of unique opportunities in their respective market places. Having a wider view that is not constrained by the need to operate the land directly would mean Australian farmers would be better positioned to take advantage of various opportunities as they arise.

Consider Third Party Investment

The potential benefit of third party investment in agriculture to existing farm businesses would largely revolve around an increased opportunity to farm land that we do not own. Some farmers have used third party investment to expand their operating businesses whilst others have used it to free up capital from within their existing area.

The performance of land as a long term investment shows the potential for non-farming investors to benefit from a more diversified investment portfolio. Expectations within this group need to be managed in the light of long term performance as opposed to some of the short term spikes we have all witnessed in recent times.

Improving investment infrastructure will go a long way to facilitating external investment in agricultural assets. Two key issues here include establishing an industry benchmark (like the NCREIF Farmland Index) and developing standardised reporting procedures for individual projects. These two steps would allow investors to more accurately assess the performance of their investment in its own right and in comparison to other investments (both within and outside the agricultural world).

The other advantage of such investment is that it may lead to innovations allowing investments in farm land to be more liquid and affordable to a wider range of people.

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Plain English Compendium Summary

Project Title:	The Efficient Use of Capital in Farm Businesses
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Objectives	To study the workings of farm businesses in a range of developed countries in order to identify opportunities for Australian farmers to make the most efficient use of their capital resources.
Background	Family farm businesses have traditionally maintained their operating scale by purchasing additional land as the opportunity arises. Over the last decade, farm land prices have grown faster than operating profits meaning that farm land is now less affordable. This has serious implications for those looking to continue growing their business by purchasing additional land.
Research	This work is based on my travels to New Zealand, the UK, Brazil, Canada, Mexico and the USA which began in February and finished in September 2009. It is also based upon my experiences as a farm business consultant working with West Australian broadacre farmers.
Outcomes	The 'business of farming' for many Australians is actually a combination of two activities: an operational business and a real estate business. It is essential that these two activities are assessed separately in order to quantify what each is contributing to the overall financial position. Opportunities for Australian farm businesses to improve returns on their capital investment include: • Leasing land to lever the returns from the operating business • Focusing on operating scale and working with 'scalable units' • Working with others in joint ventures to generate scale without the capital needed to buy additional land • Diversify real estate investments into different geographic areas and land uses • Attract external capital to the industry in order to increase the supply of leased land
Implications	A better understanding of the nature of their farm businesses will allow farmers to capitalise on their relative strengths and to identify opportunities where their total business returns can be improved.