EVALUATING OPTIONS TO INCREASE PROFITABILITY ON A DAIRY FARM IN SOUTHWEST VICTORIA, AUSTRALIA

C.M Leddin[1], J.W. Heard[2], L.R. Malcolm[3,6], K.A. Tarrant[4], C.K.M. Ho[5] and W.J. Wales[4]

Department of Primary Industries:
[1]Warrnambool Office, 78 Henna Street Warrnambool, Vic 3280, Australia
[2]Hamilton Centre, 915 Mt. Napier Road, Hamilton, Vic 3300, Australia
[3]Parkville Office, 32 Lincoln Square North Carlton, Vic 3053, Australia
[4]Ellinbank Centre, 1301 Hazeldean Road, Ellinbank, Vic 3821, Australia
[5]Tatura Centre, Private Bag 1, Ferguson Road, Tatura, Vic 3616, Australia
[6]Melbourne School of Land and Environment, The University of Melbourne, Parkville, Victoria 3010, Australia

Abstract

A simulation study was conducted to examine the profitability of three 'alternative futures' for a dairy farm facing declining terms of trade. The approach involved a case study farm, input from a steering committee and whole farm analysis involving modelling the systems over time. This provided the necessary insight into the complexity of the system, its management and effects of change on profit, liquidity, wealth and risk. The objective of the study was to compare the performance of a dairy farm business where the farm management system remained largely unchanged over a medium-term planning period (10 years) with 'alternative futures' that involved modest changes to the farm management system. It was expected that the farm needed to change to remain viable. The results showed that if the farm remained operating under status quo conditions, it would not be profitable, liquidity would deteriorate and equity would decline. The two options explored to maintain or increase profitability and liquidity in the face of a continuing cost-price squeeze produced better outcomes and resulted in greater wealth accumulation than the 'do nothing different' case. The 'change' options involved improving pasture consumption by the milking herd and expanding the pastured milking area to reduce the need to purchase feed. The key measures used to assess business performance were annual operating profit, nominal internal rate of return (IRR), annual net cash flow and the value of the owners' capital in year 10. With change to the system, annual operating profit increased, on average, by at least 3 times, the nominal IRR increased 2.3 percentage units, annual net cash flow increased $238,000 and owners wealth increased $3 million for the alternative futures investigated. Furthermore, these improved performances were achieved without markedly increasing overall risk.

Keywords: case study, modelling, farming systems, profitability, dairy business

Subtheme: Farm management

Introduction

More than 2 billion litres of milk is produced in western Victoria, Australia with an estimated production valued at AU$687 million at the farm gate (Dairy Australia 2010). This is approximately 23% of the total milk produced in Australia (Dairy Australia 2010).

In a recent survey, dairy farmers in western Victoria nominated the related phenomena of milk price and lack of profit as the two main challenges affecting their business (Dairy Australia 2010). The milk price received by Australian farmers is set by international markets (Dairy Australia 2009) and cannot be directly influenced by farmers. However, dairy farmers have control over the decisions they make on farm and this can have profound influences on profit.

Dairy farmers have long confronted the phenomenon of rising costs in real terms while at the same time the prices received in real terms have trended downward. As input costs continue to rise, and if dairy farm businesses continue to be exposed to the volatility of world milk price, the 'cost-price squeeze' will be a reality. The imperative is for farmers to change their systems to increase productivity; attempting to continue with the *status quo* in farm systems is likely to be a poor choice. In practice, the potentially negative effect of rising real costs and declining real prices on the profitability of dairy farm businesses is generally countered in two main ways: making good profits intermittently when seasons and prices are favourable, and continually adapting dairy systems to increase productivity.

There are usually a number of options available to the operators of dairy farms when mitigating the effects of the cost-price squeeze on their business in the medium term of 5-10 years. These options come down to intensifying (producing more from the same fixed inputs of land and management) or extensifying (producing more from more fixed inputs of land and management), or, more usually, elements of both of these steps. A farm in south-west Victoria was selected as a case study to examine the potential economic performance over a 10-year period for the situation (i) if the system remained unchanged and (ii) if changes were implemented that would enable the business to remain profitable. It was expected that this farm needed to change to remain viable. The implications for profit, financial viability, wealth and risk, of two options for change that are sometimes available to dairy farmers, were investigated. The options for change to increase productivity that were investigated were:

(a) Intensifying by increasing pasture consumption per hectare above the level of the current system; and
(b) Increasing the land area (extensifying) that directly supplies feed to the milkers, achieving the same pasture consumption per hectare on the milking area as in (a).

Materials and Methods

Approach

A similar approach to that of Ho *et al.* (2007) and Armstrong *et al.* (2010) was used in this study. The key features of the approach was use of a case study farm, input from an industry steering committee, and analysis using the whole farm approach involving modelling the operation of the farm systems over time, considering risk and dynamics. The essence of the approach was to compare the potential performance of the farm system over a medium-term planning period *without* any adaptation to rising real costs and declining real prices, to the performance of the business *with* some plausible changes to the system.

This approach, with detailed examination of an individual farm business, provides insight into the complexity of the system and to decisions, choices and effects of changes to the system on profit, liquidity, wealth and risk.

The industry steering group included eight local dairy farmers, two agricultural management consultants, a dairy extension officer, a milk factory field officer, an agricultural scientist and an economist. In addition to providing input into the selection of the case study farm, the steering group determined which options to test, validated the assumptions used in the analysis and assisted with the interpretation of results.

The case study farm was selected according to a set of key criteria developed by the industry steering committee. The criteria for the case study farm included rainfall at the lower end for the region (approximately 750 mm per annum), good records, good management, 'moderate' herd size, predominantly a dryland enterprise (no more than 10% irrigation), no more than 40% 'bought in' feeds, and primarily owner-operated. Detailed information on the farm chosen for the case study was obtained through farm visits and interviews with the farmer.

A set of budgets (model) for the farm was developed incorporating biophysical, economic, financial, wealth, debt and risk components. An annual feed budget based on the estimated metabolisable energy (ME) content of supplementary feed inputs, and back-calculated pasture consumption, combined with livestock ME requirements (CSIRO 2007) was used as the basis of the biophysical component of the model. The economic, financial, wealth and risk components involved consecutive annual whole farm budgets for a medium term planning period along with cumulative net cash flows (Malcolm *et al.* 2005). Inputs to the model were: milk production, herd size, pasture/crop area, type and amount of supplements fed, milk income, stock purchases, sales, deaths and births, variable costs (feed, dairy shed, herd and repairs and maintenance costs) and overhead costs (labour, depreciation and administration). A level of debt was imposed that was typical of businesses in the industry. The farm was 'purchased' on a 'walk-in-walk out' basis at the start of the planning period, 'operated' for 10 years, and then 'sold'. The net change in owner's wealth, the nominal internal rate of return (IRR) on the investment, and the financial feasibility of the investment were evaluated as key criteria to assess the performance of the system. Stochastic simulation was carried out using an add-in package to Microsoft Excel (@Risk, Palisade 2009). Distributions[15] of the key risk variables, milk price, feed costs and pasture yields, were included in the analysis instead of single values.

Changes to the farm system were evaluated using discounted net cash flow budgets and nominal cash flow budgets over a 10-year period. The key measures used in examining the performance of the alternative futures were:

- Annual operating profit (gross income minus variable and overhead costs, before interest, lease and tax) of the farm, estimated once the options had been implemented and were fully operational (Year 4)[16];
- Nominal internal rate of return for the whole farm business over the 10 year planning period;
- Annual net cash flow in the steady state after interest and lease; and
- Increase in the value of the owners' capital in nominal dollars by year 10.

Risk analysis

Risk was assessed for the existing farm system ('base farm') and each of the development options analysed. Probability distributions for the key risk variables, milk and feed prices were defined and used in the analysis. These distributions are detailed in Table 1 and were based on the probability distributions defined by Armstrong *et al.* (2010) with slight modification to better reflect the operating environment of this farm. The Monte Carlo simulation method that involves randomly selecting values for variable inputs from the specified probability distributions was then applied. Ten thousand iterations of 10-year periods were simulated resulting in distributions of possible outcomes for the key measures listed earlier. Correlations between grain and hay price (+15%), and pasture consumption and hay price (-35%) were included. In all the analyses reported, the price distributions in Table 1 were used. All dollar values used in the analysis are Australian dollars.

Table 1. The type, median, and key percentiles of the input distributions used in the analysis.

Inputs	*Type*	*P5*	*P25*	*Median*	*P75*	*P95*
Milk Price	Log normal	3.7	4.25	4.70	5.22	6.10

[15] The distributions for feed price and pasture consumption with a range of possible values, indirectly incorporate climate variability in the model

[16] Note that comparing the performance of the farm systems in terms of annual operating profit is indicative of relative merit but not precise because each farm system has slightly different amounts of capital controlled and managed. The true measure of efficiency is the internal rate of return of the investments in each system.

($/kg milk protein + fat)						
Grain Price ($/t air dry)	Gamma	182	234	280	336	433
Milker Hay Price* ($/t air dry)	Log logistic	147	188	220	259	344
Pasture Consumption** (t DM/ha/yr milking area of base farm)	Weibull	6.3	7.0	7.5	8.0	8.7

* Hay price for dry cows = milker hay price - $60
** Pasture Consumption for non-milking area = pasture consumption on milking area – 2.5 t DM/ha/yr

The case study farm

The case study farm was located approximately 10 km northeast of Warrnambool in south-west Victoria. The farm comprised 233 ha of milking area owned by the farmer and an additional 338 ha of leased area, which was used to run young and dry stock and to produce hay and silage for the milking herd. Neighbours and family leased the non-milking area of land to the farmer under various lease arrangements, some of which were considerably less than what would be paid under commercial conditions. A fixed commercial lease rate of $370.50/ha was used for this analysis as this was considered by the steering group to more closely resemble the commercial reality. The production system and herd structure of 2007/08 was used as the base farm data for the analysis. The milking herd of 570 cows was predominantly crossbred (63%) with some pure-bred Holstein-Friesian (32%) and Jersey cows (5%). There was a concentrated single calving period in July-August, and the average lactation length was 323 days. The stocking rate on the milking area was 2.4 cows/ha. Annual milk production averaged 6,629 L/cow or 230 kg protein/cow and 302 kg butterfat/cow. The dairy was a 55 unit rotary dairy.

Cows grazed the milking area for their entire lactation plus for an additional 14 days as a dry herd, with the remainder of their time spent grazing the non-milking (leased) area. The dominant pasture species on the milking area was perennial ryegrass. However, there was also a brassica crop (100 t DM) grazed in 2007/08. During this same year, 870 t DM of grain and 107 t DM of palm kernel extract were fed. Forage supplements included 761 t DM of home-grown silage, 403 t DM of purchased cereal hay and 52 t DM of purchased straw. Purchased feed made up 34% of total feed required.

Annual pasture consumption on the milking area was estimated to be 5.8 t DM/ha and on the non-milking leased area was estimated to be 3.9 t DM/ha. These are lower than expected in this district for high standard pasture management practices and may reflect in part the complex and time-consuming system that the owner was operating.

For the analysis, an owner/operator allowance of $90,250/year was used. This was calculated according to industry rates assuming a base salary of $40,000, plus $80/cow up to 500 cows and $40/cow beyond 500 cows, (www.thepeopleindairy.org.au) and, with the addition of 9% superannuation. An equity of 65% was assumed in year 1. This equity was selected as it gives the farm scope to develop through further borrowings if desired, whilst not being at either extreme (too low where it would be difficult to expand or very high where the business is under less pressure to strive for the high returns).

The base farm performed profitably during the 2007/08 financial year. However, it did so under the safeguard of historically high milk prices and family-based lease costs that were considerably below market prices. Continuation of the *status quo*, base case, is identified in the analysis as being future number 1. The two options for change identified are alternative futures number 2 and 3.

Analysis of options

The steering group identified options that had potential to increase profit of the farm whilst maintaining herd size. The key details are discussed below and changes to the farm operation and costs are summarised in Table 2. In all cases, it was assumed the owner started with 65% equity. The owner/operator allowance was maintained at $90,250/year for the changed systems because the level of management skill required to run each system was considered to be similar to that of the existing operation.

Alternative future number 2: Improving pasture consumption on the base farm.
This option involved improving the base farm through better pasture production and consumption. The steering group considered that for this system in this region, pasture consumption of around 7.5 t DM/ha should be consistently achievable given the rainfall and soil type of the property. To achieve this level of pasture consumption, nitrogen fertiliser application was increased from 83 kg N/ha (base farm) to 180 kg N/ha in this option and over sowing of pastures was undertaken. In this analysis, pasture consumption of 7.5 t DM/ha was assumed on the 233 ha of milking area, while a pasture consumption of 5.0 t DM/ha was used for the non-milking area. As stocking rate was maintained at 2.4 cows/ha, the improved pasture consumption meant the requirement for leased land was reduced by 100 ha. It was assumed that there was no net increase in paid labour from the base farm as the increase in labour requirement to achieve and manage improved pasture production and consumption was offset by the reduction in overall farm size.

Alternative future number 3: Increasing milking area and reducing feed brought in.
This option involved converting some of the non-milking area to milking area by investing in pasture improvement and infrastructure, effectively reducing the stocking rate to 1.9 cows/ha and increasing pasture consumption per cow. In the analysis the pasture consumption from the 60 ha of non-milking area converted to milking pasture reached the target of 7.5 t DM/ha in year 4 and had an effective stocking rate of 1.9 cows/ha. An investment of $70,000 was needed in new tracks, stock water and capital fertiliser (Table 2).

Table 2. Summary of changes

	Future #1 Base Farm	Future #2 Increased pasture consumption	Future #3 expanded milking area and reducing feed brought in
Milking area (ha)	233	233	293
Non-milking area (ha)	338	238	178
Stocking rate (cows/ha)	2.4	2.4	1.9
Purchased feed (% of total feed required)	34	28	23
Feed production cost on milking area ($/ha)	357	460	640
Feed production cost on non-milking area ($/ha)	809	782	647
Total lease cost ($)	125,000	88,000	88,000
Additional Track Cost			40,000
Additional Stock water cost			10,000
Capital fertiliser cost			20,000

Results

The base farm operated relatively inefficiently from an economic perspective, with an average return to total assets of 0.8%. Average annual operating profit in the steady state year (year 4) was $82,000. Once interest and lease payments were made, average annual net cash flow in the steady state, became negative (Table 3). The average cumulative net cash flow from the runs of 10 years (Figure 1) shows that if the farm continued operating the *status quo* system, the owner's wealth at the start of the planning period would steadily erode. Importantly, efficiency, liquidity and wealth associated with maintaining the steady state system in the face of a cost price squeeze were all markedly inferior to the performance the business could achieve if changes are made to the system to increase productivity.

Table 3. Average profitability and performance measures for the base farm and alternative futures.

	Future #1 Base farm	Future #2	Future #3
Annual Operating profit in steady state ($'000)	82	250	291
Nominal Internal rate of return (%)	4.2	6.5	6.8
Annual net cash flow (steady state) ($'000)	-58	180	219
Nominal owner's capital in year 10* ($'000,000)	1.4	4.4	4.8

* Starting owner's capital was $3.1 million

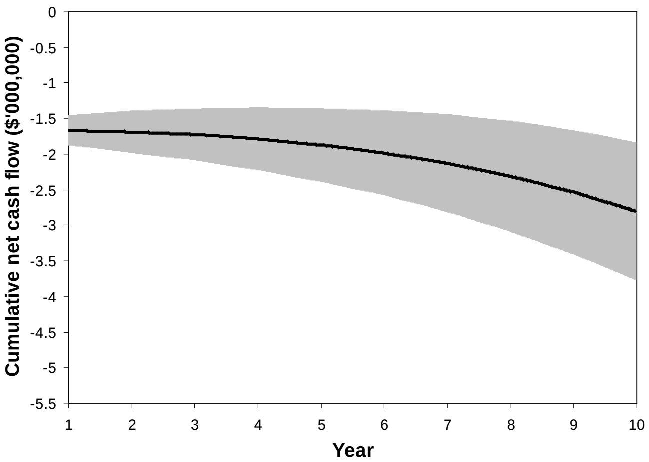

Figure 1. Cumulative net cash flow for the base farm. The shaded area indicates the interquartile range indicating the spread of the middle 50% of the data

<u>Alternative future 2: Improving pasture consumption on the base farm.</u>
This option, increasing pasture production and consumption, could produce an average annual return on capital each year over the 10 year period of 3%, with an annual operating profit in the steady state that was more than 3 times that of the base farm, and a positive annual average net cash flow in the steady state (Table 3). The increased annual average steady state profit and improved annual net cash flow largely occurred through more efficient use of the pasture feed base (a reduction in feed production costs of $64,000) coupled with a $58,000 reduction in the requirement for purchased feed relative to future 1. A $37,000 reduction in lease costs of non-milking area also contributed to the improved cash flow. Because more pasture was being consumed per hectare in this option, less area was needed to achieve the required intake, so the requirement for leased land was reduced. The nominal IRR was 2.3 percentage units higher than for the base farm, and the nominal owners capital in year 10 substantially (approximately $3 million)

greater than the base farm ending wealth of $1.4 million (Table 3). The positive average annual cash flow in the steady state ensured that interest was paid each year, allowing debt to be reduced.

Alternative future 3: Increasing milking area and reducing purchased feed.

Increasing the milking area, effectively reducing stocking rate (compared to the base farm and alternative future 2) from 2.4 to 1.9 cows/ha, resulted in a system that was more profitable than the base farm and alternative future 2 albeit to a lesser extent for the latter (Table 3). The average annual operating profit in the steady state from expanding the milking area was $41,000 higher than was achieved by increasing pasture consumption on the existing milking area. There were also increases in nominal IRR, annual net cash flow in the steady state and nominal owner's capital in year 10 compared to the alternative futures 1 and 2.

The performance of farm systems needs to be assessed in terms of both risk and return of a business over time. Different farmers prefer different 'mixes' of returns and risks. In this analysis, risk is represented by the distributions of possible outcomes for profit, returns to capital, financial viability and growth in wealth, over time. In Figure 2, differences in the variability of performance measures of alternative futures analysed are shown.

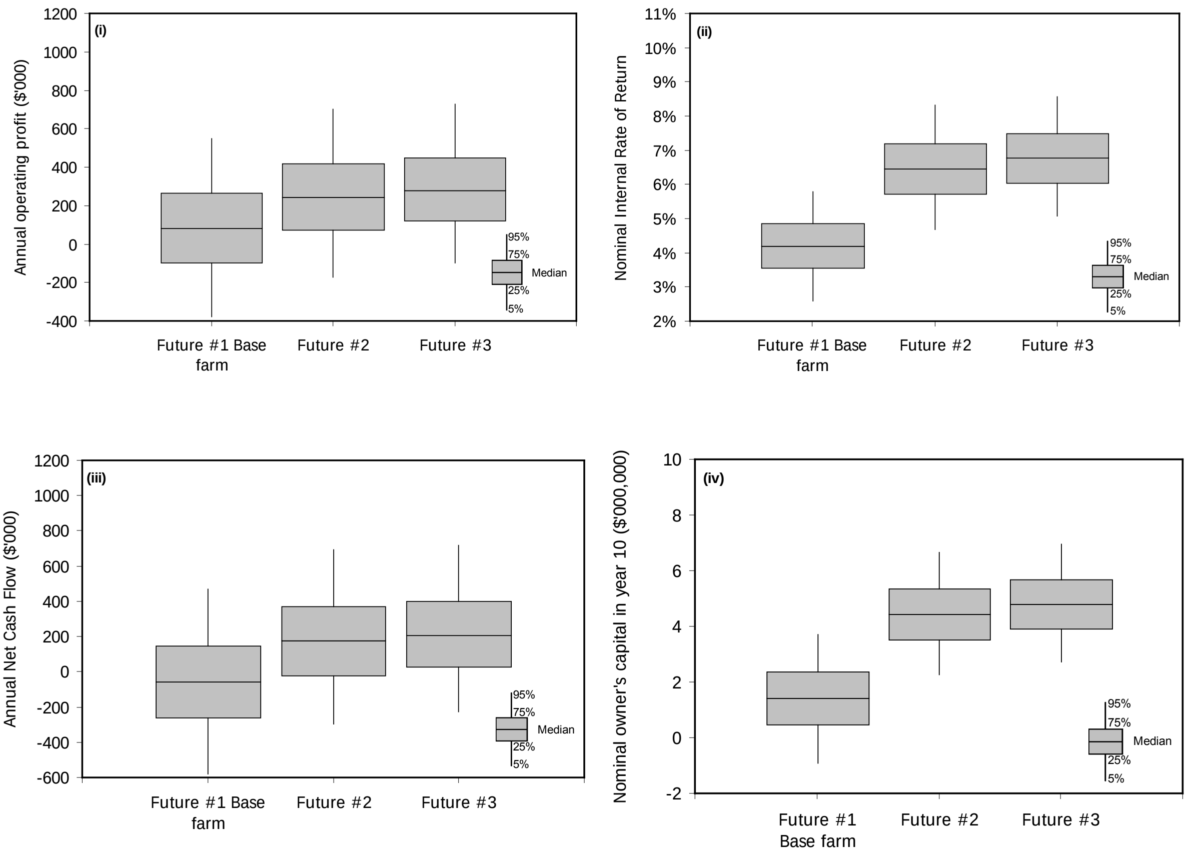

Figure 2. Median and key percentiles of (i) annual operating profit, (ii) nominal internal rate of return, (iii) annual net cash flow and (iv) nominal owner's capital in year 10 for the base farm and alternative futures.

Discussion

The expectation of the need for the case study farm to change its operating system to remain viable was supported by the results. If the base farm system remained operating under the *status quo* system, the farm would not be profitable, nor would it be liquid, and owner's equity would be eroded. The two options explored to improve the productivity of the farm business to lift profitability by increasing productivity to combat effects of a future cost-price squeeze produced better efficiency and liquidity outcomes than was achievable with the base farm and resulted in greater wealth accumulation for the owner.

The alternative futures 2 and 3 required additional investment in pasture management such as pasture harvesting, over sowing and fertiliser application to increase pasture consumption, but did not involve any more significant changes to the system. However, these changes improved profit sufficiently to combat the effects of the future cost-price squeeze.

The median values for annual steady state operating profit, IRR, annual steady state net cash flow and nominal owner's capital in year 10 was similar for the two changed farm systems – and both were superior to the base case. For 75% of the time, the options presented would deliver a nominal IRR and growth in owner's nominal capital in year 10 that was higher than the best possible result for the base farm (95% of the time). For annual net cash flow in the steady state and annual steady state operating profit, there is some overlap between the 'boxes' and 'whiskers' of the base farm and options, suggesting the options will not necessarily perform the 'best' as measured by these parameters in all the runs of 10 years that are possible. Importantly, the options involving changing the current farm system will have annual net cash flows in the steady state that are greater than zero 75% of the time, whereas for the base farm, this situation will be achieved less than 50% of the time. For the base farm and the two change options the range of the variability for each measure was a similar size, suggesting each system had a similar amount of risk. That is, the change options increased the mean performance of the systems without markedly increasing the overall risk. Significantly, adopting change to increase productivity greatly reduced the risk of ending up with less equity than the dairy farmer started with, and greatly increased the chance of greater wealth.

Implications for other dairy farms

Each farm business comprises a unique mix of physical, human and financial resources, managed by individuals with particular skills, attitudes to risk, family situation and goals, and with unique histories. Highlighting this uniqueness can sometimes overshadow the similarities that exist between farms. While farms are unique, they share many common elements. All dairy business operators seek to manage their land, water, animal, feed and labour to produce milk. Farmers in a similar region face similar climate and market conditions. Furthermore, the same biological principles such as those relating to dairy cow nutrition apply to all farms.

In the case analysis presented, the base farm had performed in a reasonably satisfactory way in the high milk price year of 2007/08, generating operating profits and a positive annual net cash flow in the steady state. However, close inspection revealed this apparent 'adequacy' was in part a result of a mix of concessionary leasehold arrangements, and the pasture supply and consumption, which was considerably below levels achievable in similar operations in the local area. The business had evolved into a complex arrangement of owned and land leased at sub-commercial rates across which management intensity varied. There was scope to do it differently, and better. This study, guided extensively by the committee of local dairy farmers and their advisors, identified a couple of key opportunities which warranted analysing. The business has strong potential to implement changes, lift productivity and offset the impacts of a future cost-price squeeze.

The study presented here is intended to encourage other farm businesses to look at the results, and possibly with input from an experienced consultant, ask 'how might I think about change on my own farm?.'

The Approach

The key to this approach to research was applying the whole farm approach to rigorously investigate well-defined research questions about alternative futures for the business, all done under the guidance of a team of local dairy farmers and their consultants. The approach emphasises the roles risk, time and adaptation in the face of change play in successfully managing businesses. The

March2011 - ISBN 978-92-990056-6-8 www.ifmaonline.org - Congress Proceedings

approach fully recognises that the main challenge in running modern dairy businesses is not 'optimising' the operation of an existing whole farm set of production functions but, instead, is mostly about moving onto new production functions over time, under conditions of risk and uncertainty, in the face of inevitable rising real costs and fluctuating, downward trending, real prices.

Whilst the approach used has many advantages, it also has limitations. In-depth simulation provides the necessary insight into a farm business. However, it can be argued that the specific numbers generated to answer the research questions are only directly applicable to the circumstances of the case study farm. Therefore a challenge with this type of work can be distilling the information generated into a form that is meaningful to other farm businesses. Also, this approach, like all studies using models requires assumptions to be made. This cannot be avoided as the future is uncertain.

Conclusion

This work has endorsed the truth of the farmer adage 'if you are standing still you are going backwards'. The simulation study has identified and quantified gains from changing an existing dairy system in the face of a continuing competition for and rise in the real costs of key inputs, such as labour and capital and potentially other inputs such as fuel, chemicals and purchased feeds, with, at the same time, a stable or declining real price for milk fat and protein. The two changes identified and analysed as alternative futures 2 and 3 involved intensifying and extensifying: both worked, in the sense that performance measured by a range of indicators of returns and risk promised to improve markedly over the performance of the system under the *status quo* future.

Further work could investigate the merit of other choices for changing this farm system in either of two directions. One, by leasing less land and reducing herd size and labour needs to a size closer to the district average of around 300 cows, and putting some 'released' capital into a non-farm investment. Or, at the opposite end of the spectrum of farm systems, going for growth by expanding the business to milk more cows and potentially generating greater total annual net cash flows and greater net worth over the 10-year planning period.

This approach to investigating real questions facing dairy farm owners and managers, based on a team of local farmers and their advisors, emphasising the whole farm approach which incorporates time, risk and dynamics, exploring answers to relevant questions about alternative futures for the business, is able to provide information that is relevant and transparent to other farmers in similar situations, managing similar economic and natural phenomena within and beyond their farms.

Acknowledgements

We thank the case study farm family for their cooperation and willingness to participate in the study. We acknowledge the valuable input of Dan Armstrong, formally of DPI and the interest, time and effort afforded to the project by the members of the project steering group: David Beca, Mark Billings, Ivan Boyd, Graeme Croft, Angus Drummond, Leighton Hart, Joe Jacobs, Kym Mathew, Peter Mussen, Naomi Pye, Adriana Robaina, Michele Ryan and Nick Renyard. This work was supported by funding from Dairy Australia, WestVic Dairy and the Department of Primary Industries, Victoria.

References

Armstrong DP, Tarrant KA, Ho CKM, Malcolm LR, Wales WJ, 2010, Evaluating development options for a rain-fed dairy farm in Gippsland, Animal Production Science, 50, 363-370.

CSIRO, 2007, Nutrient requirements of domesticated ruminants, CSIRO publishing Melbourne, Victoria.

Dairy Australia, 2009, Australian Dairy Industry in Focus 2009. Available at http://www.dairyaustralia.com.au/~/media/Publications/Australian%20Dairy%20Industry%20in%20Focus/2009/Australian%20Dairy%20Industry%20In%20Focus%202009.ashx [Verified 25 August 2010].

Dairy Australia, 2010, Dairy 2010 Situation and Outlook: A snapshot of the dairy industry in Western Victoria. Available at http://www.dairyaustralia.com.au/Our-Dairy-Industry/~/media/Documents/Our%20Dairy%20Industry/Situation%20and%20 Outlook/WestVic%20SO%20factsheet%20July%202010.ashx [Verified 25 August 2010].

Ho CKM, Armstrong DP, Malcolm LR, Doyle PT, 2007, Evaluating options for irrigated dairy farm systems in northern Victoria when irrigation water availability decreases and price increases, Australian Journal of Experimental Agriculture, 47, 1085-1094.

Malcolm B, Makeham JP, Wright V, 2005, The farming game – Agricultural management and marketing, 2nd Ed, Cambridge University Press, Melbourne.

Palisade 2009, @Risk – Risk analysis add-in for Excel version 5.5.1, Palisade Corporation, Newfield, New York.

The people in Dairy website http://www.thepeopleindairy.org.au [Verified 27 September 2010].

March2011 - ISBN 978-92-990056-6-8 www.ifmaonline.org - Congress Proceedings