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Integration of wool, meat and cropping systems

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Abstract

Scrutiny of existing farm enterprises by farm business managers is increasing in the search for the optimum enterprise mix. It is challenging to identify the optimum enterprise mix in farm businesses because of the complexity of farming systems, price volatility and the difficulty of accounting for risk. Whole-farm modelling enables analysis of the integration of enterprises within a farming system, but requires considerable resources. When models are not available, farm managers who wish to optimise their enterprise mix should consider optimising the use of land, genetic and human resources.

Introduction

Farm business managers often consider the optimum enterprise mix of their businesses. Throughout much of the 1990s, the optimum enterprise mix was one in which the area planted to crops was maximised and the remainder of the land was stocked with livestock, primarily to use the lucerne that had to be grown in order to maintain returns from the cropping enterprise. This paradigm has changed over the past few years, and many farm businesses are altering or considering altering their enterprise mixes to optimise their systems for current market conditions. The main reasons for this trend are:

- Cereal-grain prices are low on the international market and have only been sustained by the high feed-grain demand of the domestic market (Fig. 1 and Table 1).
- Disillusionment with the returns for canola because of a combination of disease, price and reduced yields (Fig. 1).
- Greater volatility of returns from crops relative to those from livestock enterprises (Fig. 2).
- Greater returns from cereal varieties suitable for grazing, particularly triticale and wheat, relative to those from cereals that are not grazed (Fig. 1).
- The widespread beliefs that low wool prices, particularly those of finer wool, are permanent rather than cyclical and that the low prices are symptomatic of an industry in terminal decline.
- The widespread belief that the high sheep-meat prices are permanent rather than cyclical and that high price is symptomatic of an industry that has a very good future.

The challenge for farm managers is to develop profitable and resilient farm production systems that will endure in the long-term. A change in the type of enterprise will not necessarily translate directly into improved profits because there is greater variation in profitability within enterprises than between enterprises. Profitability is not driven by involvement in an enterprise but by how well an enterprise is managed, but this concept does not seem to be widely understood, given the enterprise changes that are currently occurring. It is probably easier to blame the market for poor business performance than it is to blame management for poor business performance.

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Optimal integration of enterprises to capture the synergies between enterprises is a substantial challenge for which there is limited good-quality research or support data. There are a number of reasons for the lack of data:

- The complexity of accounting for all synergies: because each farm business has a unique set of resources available, a uniform approach is not appropriate.
- The complexity of prices: price and seasonal variables for each of the past ten years resulted in different optima. Moreover, cyclical and seasonal price changes are superimposed on long-term trends. For example, sheep-meat prices are currently almost double the long-term trend (Fig. 3). Is this the start of a new price-trend or just a short-term anomaly? Returns for enterprises with varying combinations of sheep meat and wool are shown Figs 4 and 5.
- The difficulty of accounting for risk, including risks associated with price, season and disease.
- The difficulty of accounting for new technologies such as grazing varieties of wheat.

The preferred approach for efficient integration of farm enterprises entails the use of whole-farm models (e.g., Ewing and Flugge, 2004), but these are not widely available at present. In the absence of models, the use of land, genetic and human resources should be considered.

Table 1. Price deciles (1995–2005) and current price deciles for common broadacre commodities (shaded cells indicate deciles closest to current prices).

	Wool			Lamb	Mutton	Beef		Grain	
Decile	17.5 µm	19 µm	21 µm	18–20 kg	≥ 24 kg	200–240 kg	Cow	ASW 10%[1]	Canola
0%	869	802	578	125	47	197	118	129	270
5%	949	884	619	162	67	226	149	154	315
10%	993	918	646	183	71	234	162	165	335
20%	1037	952	685	213	79	247	188	181	348
25%	1070	980	709	220	84	255	200	186	358
30%	1109	1013	731	230	87	265	207	190	371
40%	1226	1064	765	248	96	278	224	197	385
50%	1359	1129	797	269	108	298	243	203	408
60%	1464	1168	841	307	162	321	261	208	422
70%	1582	1258	880	330	185	340	282	221	438
75%	1666	1290	916	345	198	349	289	226	449
80%	1808	1342	1003	361	208	360	297	235	459
90%	2092	1435	1066	397	228	379	317	255	488
95%	2227	1506	1227	423	243	396	340	287	509
100%	2448	1695	1358	504	271	429	399	363	606

[1]Australian Standard White

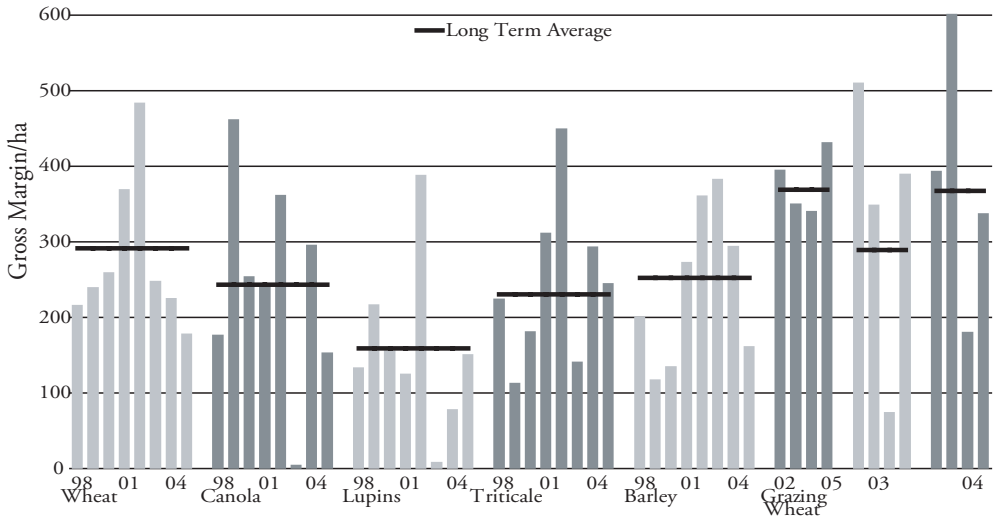

Fig. 1. Crop gross margins (1998–2005)

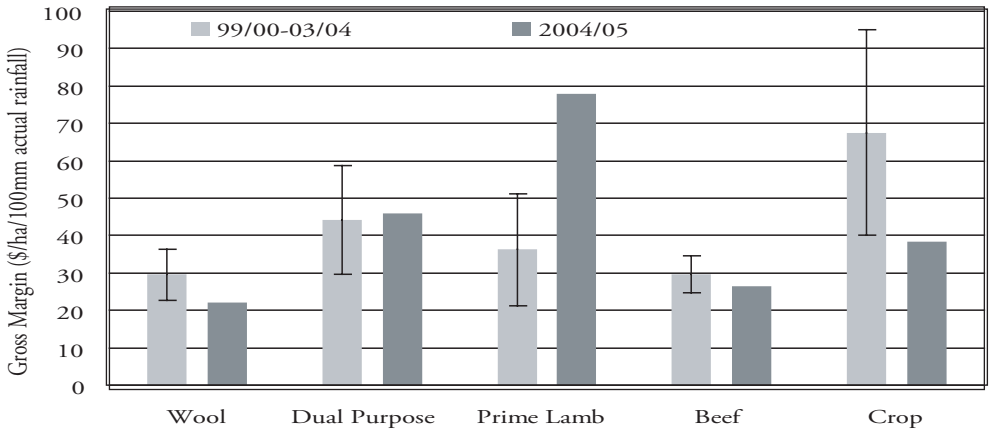

Fig. 2. Medium- and short-term enterprise gross margin for mixed farms.

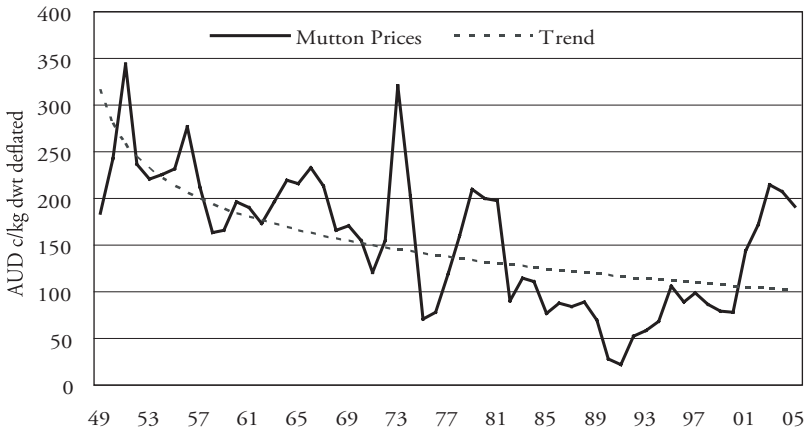

Fig. 3. Real NSW mutton prices (1949–2005).

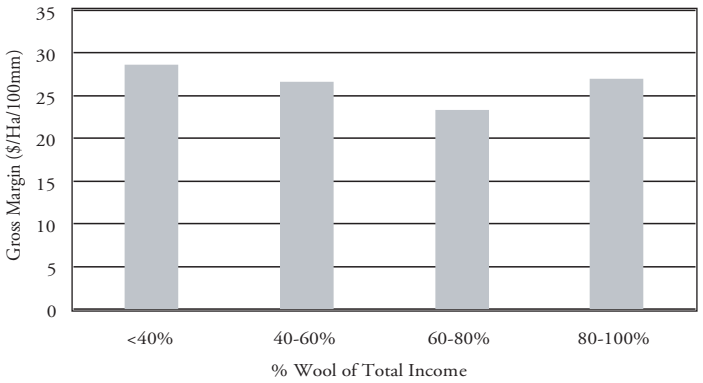

Fig. 4. Gross margins for varying exposure to sheep meat and wool (1998–2001).

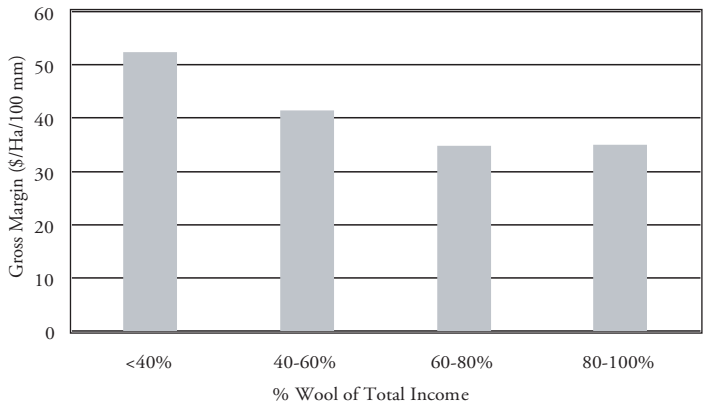

Fig. 5. Gross margins for varying exposure to sheep meat and wool (2002–2005).

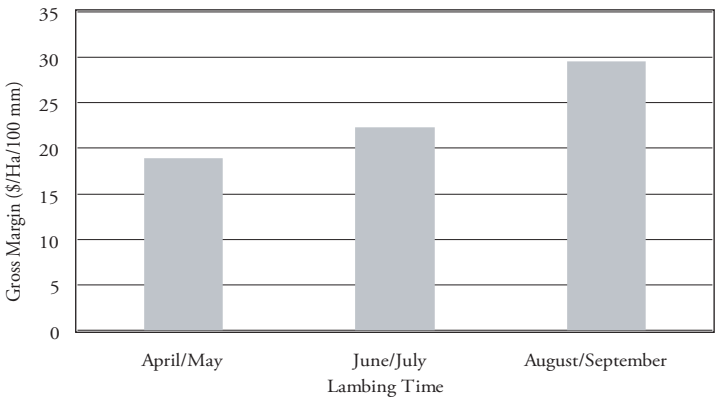

Fig. 6. Effect of time of lambing on profits of wool flocks (1998–2005).

What is the most efficient use of land resources?

In the past, land resources were used less efficiently for livestock production than for cropping. This is reflected in poor mean rates of productivity increases for livestock enterprises in southern temperate Australia (ABARE, 2004) despite excellent productivity gains for some individual businesses (Geenty et al., 2006). A good example of the inefficient use of resources is suboptimal lambing time, which occurs in many self-replacing flocks despite overwhelming evidence that later lambing is more profitable. Analysis of data from Merino flocks over three years showed that for every month later that lambing occurred between April and October, profit increased by 45 cents per dry sheep equivalent (Fig. 6; Warn et al., 2006). This is not reflected by industry practices because there is a trend to earlier lambing in many flocks as a result of increased emphasis on meat production. However, it is unclear whether such changes will translate into improved profits (Fig. 4).

The incorporation of grazing wheats into mixed farming systems can generate gross margins superior to those of ungrazed crops. These gross margins assume that returns from the livestock component are based on agistment rates, which may underestimate the actual return (Sackett, 2004). Apart from recent disease challenges to grazing wheats, other aspects should be considered when considering the incorporation of grazing wheat into mixed farming systems:

- Grazing wheats grow best when they are least needed: during an early autumn break that enables early sowing. Are grazing wheats reliable enough to justify a change in the system such as an earlier lambing and the use of grazing wheat for ewes or a later lambing and the use of grazing wheat for finishing lambs during the following year?
- The value of grazing wheat is that it can result in a substantial increase in meat production, but its value is greatest if the increased production results in a price premium or additional liveweight gain compared to what would otherwise have been produced, for example, on spring pasture growth. Preliminary modelling shows that inclusion of grazing wheat only results in a small increase in whole farm gross margin (Salmon, 2004).

Currently, a substantial amount of land that is best suited to maintenance production systems is being used to finish lambs to weights of 18–22 kg rather than sell them as stores. A common strategy is to extend the growing season using fodder crops or alternative pastures. The question to consider is how far this approach can be taken before cost and risk make it uneconomic. An alternative strategy is to utilise low-risk, low-value feed efficiently during the growing season. Although the prevalence of store lamb production and specialist finishers using either grass or feedlots is increasing, the immaturity of the lamb industry compared to the beef industry is a major constraint to producers operating in a niche in which they have a competitive advantage.

What is the most efficient use of genetic resources?

Over the past eight years, the most profitable use of genetic resources has been the combination of specialist genetic resources for wool (maternal) and meat (paternal) in a dual-purpose enterprise. This system is distinctly different to a self-replacing dual-purpose flock, for which there is a lack of data on production and financial parameters. However, several modelling studies indicate that dual-purpose enterprises are unlikely to provide the leap in productivity that many producers expect (Sackett, 2004; Kopke et al., 2005).

What is the most efficient use of human resources?

As farm management becomes more complex, it becomes more difficult to keep up-to-date with changes in technology and marketing. We suggest that two to three enterprises are the optimum for most farm businesses because synergies are eroded by complexity when there are more than three enterprises. Those who are passionate about an enterprise will almost always generate better results

than those who lack passion. Passion is part of the reason for the existence of greater differences within enterprises than between enterprises.

Conclusion

It is prudent for farm business managers to analyse the performance of existing farm enterprises in the pursuit of the optimum enterprise mix. However, profitability is not driven by involvement in an enterprise but by how well an enterprise is managed. If farm managers are to develop profitable and resilient farm production systems, they must be highly efficient in their use of land, genetic and human resources.

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