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Gross margins for NSW beef enterprises from 1999-2010

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Abstract: Erratic rainfall and rapidly changing world markets have led to volatile stock prices and variable returns to beef producers in recent years. Many producers have subsequently reviewed their choice of enterprise or management system and so an examination of long-term markets is useful when contemplating or advising on possible changes. A comparison of selected beef enterprise gross margins from 1999-2010 indicates that producers supplying markets with tighter supply specifications were generally rewarded with higher returns. For example, EU producers are obliged to maintain rigorous records, subjected to audits, and need improved pastures in order to produce heavy, finished, young cattle. Accordingly, returns in that enterprise have often been among the highest. Conversely, returns from weaner production were, on average, the lowest of those presented. There are no specifications for weaners; they can be produced from all classes of land and many producers revert to this production system during droughts or to realise quick returns. Note that rising input costs and variable market premiums have recently impacted most enterprises.

Keywords: beef production, NSW, enterprise choices, profitability, market trends.

Introduction

Recent periods of volatile pricing have camouflaged long-term trends and made enterprise choices confusing for some producers. Monitoring enterprise gross margins over an extended period allows advisers to set a base level expectation in line with current market intelligence and also allows producers to monitor the performance of their operation.

This paper presents gross margins for selected beef production enterprises in NSW from 1999-2010. The enterprises included in this paper are part of a wider analysis that is updated quarterly, and detailed descriptions are available at www.dpi.nsw.gov.au.

The information presented here was initially collated to provide budgeting information for beef producers at discrete time intervals. However, when viewed over a longer period, the data also provide information about the robustness of different markets and their performance during particular price cycles or market conditions such as the severe 2002 and 2006 droughts and the current global financial crisis.

As with other historical data sets, trends or comparisons cannot necessarily be extrapolated into the future. Similarly, although the selected enterprises have broad geographical appeal, their gross margins cannot be superimposed across all regions of the state. For example, export oriented enterprises apply more to the northern end of the state and yearling type enterprises to the Southern and Central Tablelands.

Materials and methods

Gross margins were calculated for selected production enterprises by collecting stock price and variable cost information from

commercial sources. For example, the livestock prices used were the average of quotes from three independent and professional marketers covering the northern, central and southern parts of the state.

The enterprise performance levels selected represent 'achievable' results for a well-managed herd run on land which lends itself to that particular enterprise. They are not necessarily the top of the range best practice results, nor are they just average results. Livestock production parameters, such as weaning percentages and growth rates, were arbitrarily chosen to reflect production in the absence of exceptional circumstances (see Table 1). For example the main variable costs incurred by the enterprises were included, but not the cost of drought feeding.

Gross margin comparisons

Gross margins for each of the enterprises are reported as dollars per Dry Sheep Equivalent for 100 breeders and various followers, or 100 steers of varying sizes, while the area of land required for the enterprise (Table 1) is calculated from subsequent feed demand. Note that while the margin per stock unit (DSE or Large Stock Unit) is the most practical baseline for enterprise comparison, benchmarking gross margins per hectare over time can also be useful from a producer perspective.

Selected comparisons have been made to represent the impacts of different industry trends. In the first example, the production of prime, moderately grown, 15-20 month cattle is compared with heavy feeder steer production where export targeted steers are turned off at similar liveweights but up to two months younger (0-2 teeth) and in forward store (Fat Score 2-3) condition (see Figure 1).

Secondly, inland weaner production is compared with feeder steer 'backgrounding', where purebred (selected for growth) or crossbred steers are purchased as weaners and grown on grass for 12 months, until reaching feedlot entry weights of about 460kg (see Figure 2).

The gross margins of two breeding operations with older, heavier sale stock were also compared (see Figure 3). Jap Ox is a grown steer (up to 8 teeth) market while the EU accepts steers and heifers up to 4 teeth with carcass weights 260-420kg. There are no breed restrictions for either market, and only grass fed cattle have been included.

The gross margins of three steer 'backgrounding' or 'grow out' systems are also included (see Figure 4). The 160-340kg operation grows out early weaned, 4-6 months old steer calves until they reach entry weights for domestic feedlots where they would be fed for about 60 days. The 240-420kg operation grows Angus, Shorthorn or Murray Grey weaners moderately i.e. 0.5 kg/hd/d (Arthur et al. 1994) for about 12 months or until entry weights for the Japanese 'long fed' (up to 400 days on feed) market are reached. Finally, the 240-460kg operation grows steers at about 0.7kg/hd/d, reaching entry weights for the Japanese 'mid fed' (150-180 DOF) market.

Results and discussion

Feeder steers vs young prime cattle

The 'Young cattle of moderate growth' enterprise was probably the most common system in NSW at the start of the recording period. However, it has been consistently less profitable than 'Heavy feeder steer- 0-2 tooth' production (Figure 1). Differences were largest during 2003-2005, the 'boom' years for the heavy export feeder market, although there has been steady growth in this market for most of the study period. Note that recent differences between these enterprises reflect a weakening in slaughter rates for young prime cattle while prices for feeder steers have remained solid.

In general, the better gross margins for heavy feeder steer production may be explained by the fact that there is often a price advantage for the feeder steers sold direct to feedlot on a liveweight basis compared with the yearling animals. Secondly, feeder steers are typically produced on fertile inland properties where limited fertiliser is applied. Finally prime yearling cattle are often produced in conservative systems that do not take advantage of breeding technologies or carcass feedback, compared with heavy feeder steer systems that often utilise sire

selection for growth and marbling potential and deliver on strict delivery specifications.

The export feeder steer enterprise also has a distinct management advantage whereby the primary sale stock (heavy store steers) do not need to be fattened. This provides cows with access to better quality feed and therefore maintains conception rates, while also having on hand a number of saleable stock during early feed shortages. The prime market enterprise relies on some improved pastures to fatten sale stock and so rising input costs will continue to put pressure on margins.

Weaners vs growing steers

Growing out weaner steers from 240kg to about 460kg was consistently more profitable (mean GM=\$30.40) than inland weaner production (mean GM=\$23.93; Figure 2). The returns from both enterprises were driven upwards during the export boom from 2003-2005 (coinciding with the United States being banned from Japanese and Korean markets). Their returns are often inversely proportional, as lower weaner prices in drought years increases backgrounding margins. Conversely, high weaner prices, such as in 2010 have reduced backgrounding margins (Figure 2). This is due to widespread rainfall following widespread drought, creating a big demand for restocking animals.

EU vs Jap Ox

Producers targeting the European Union market generally have higher input costs associated with the improved pastures required to produce heavy young cattle. Despite this, EU production has, until recently, always been more profitable than Jap Ox (Figure 3). When averaged over the study period there was a \$2.50/DSE margin difference between the enterprises (data not shown). That is equivalent to \$17.50/Livestock Unit (LSU), and on a 600LSU property equates to \$10,500 per year.

The historically higher gross margin for EU enterprises is due to several factors, including price premiums of up to 60c/kg carcass weight and the fact that heifers are also accepted in this market. In addition, EU producers typically take advantage of hybrid vigour with two and three-way breed crosses often utilised. Although there are no breed or age restrictions for Jap Ox, steers often take longer to reach minimum weights, thus increasing turnover time.

Since the onset of the global financial crisis however, there have been no premiums for beef destined for the EU. When combined with recent increases in input costs (as illustrated by Andrews et al. 2008) returns from this enterprise have been equal to, or

less than, that of Jap Ox. Despite this many EU producers have had the flexibility of being able to access other markets. For example, those targeting the EU market with purebred British stock have instead been able to access the EU feeder steer market, while well grown, crossbred animals are often suitable for other prime export markets.

Growing steers for different markets

The comparison of different 'grow out' operations shows that backgrounding light, early weaned calves had a relatively high return over the period that it was calculated (mean GM= \$31.53; Figure 4). This enterprise has only developed since 2001 when successive dry years forced early weaning and/or delayed calving, which has meant that calves were often younger and smaller when weaned in April/May. In turn, this option has been taken up by traders looking to minimise investment outlay and maximise turnover in controlled grazing circumstances. The high returns are partially the result of high average daily gains (as a percentage of live weight) that are brought about by the inherently strong feed conversions in very young animals when grown without a major setback (Leibholz 1973). Additionally, their low maintenance requirements mean that they can be run at higher stocking rates.

The highest profile backgrounding operation, that of buying weaner steers suited to the long fed market e.g. Angus and growing them on grass for 12 months has generally been the most variable and on average the poorest performer (mean GM/DSE=\$25.71). That situation is likely to continue while high grain and strong store prices persist. Even though a premium exists for purebred Angus steers at the feedlot, there is also a considerable premium for them as weaner steers, compared with crossbred animals. When combined with the extra weight gain achievable with crossbred animals the gross margins for that enterprise has consistently been higher (mean GM/DSE=\$30.21). The final point to note from the grow-out gross margins is that they are all highly variable compared with the breeding enterprises and the timing of buy and sell decisions is enormously influential on the financial outcome.

How can gross margin calculations be used in an enterprise evaluation process?

Although it appears logical, it's usually an oversimplification to suggest that primary producers should be influenced in or out of different beef enterprises based simply on gross margins. Some enterprises don't suit particular geographical areas, while those

enterprises displaying higher gross margins often carry more risk and this has been exacerbated with rising input costs.

In addition, most people have an overriding need to consider sensible risk management, not just the highest gross margins, either currently or historically. For example, not all producers have the skills or capital required for running all enterprises efficiently, particularly if they are not specialist beef producers. Growing and trading enterprises require additional capital while breeding and finishing enterprises require stock management and pasture development skills. There is also some merit in establishing enterprises that do reasonably well most of the time and that can be well managed within the scope of on and off farm resources available.

Having set a potential direction, most people seek a return on their asset or investment after accounting for present and future costs of production (Gout 2008) or a specific future margin requirement. Both prices and input costs can be budgeted on the basis of best and worst case scenarios. When evaluating enterprise options, it's worthwhile encouraging producers to think about what they don't want to be doing in two years and that usually helps with the focus. Escalating input costs have heightened the need for producers to think about all options, but still meet a desired market end point consistent with the stage of property development, enterprise maturity and individual land and management capability.

Conclusions

The analyses generally indicate that the more discerning the market, the more lucrative it is. For example, the gross margin for heavy feeder steer production was higher than for young prime animals with moderate growth. Feeder steers need to be well grown but also produced within rigid specifications for age, weight, fatness and sometimes lifetime traceability and breed. The prime yearling enterprise in these analyses typifies a more general production system, where animals are mostly sold on a weight basis to a range of domestic buyers and wholesalers who, collectively, will accept most animals.

Another example includes the consistently higher returns for EU compared with Jap Ox cattle. EU production requires property accreditation, maintenance of comprehensive individual animal records and undergoing periodic audits. These regulations are too onerous for many producers, and so the relatively small EU quota (7,500T) has only been reached once since 1999. Although a combination of high input costs and little or no premium currently has EU gross margins

lagging behind Jap Ox, the flexibility of that enterprise means that it should remain a lucrative option.

Similarly, growing out early weaned calves requires more attention to detail, compared with older weaners, to ensure that nutrition is adequate and health problems are minimised (Cumming 2008). Since that level of management does not suit all operations it follows that relative returns should be higher.

Results clearly show that returns from weaner production are consistently lower than the steer backgrounding enterprises. However, each time the weaner market strengthens, driven by re-stockers or general industry market improvements, there is a tendency for more producers to turn off weaners. In those situations significant market over-runs often occur, tempered only by general market price declines. These trends are often exacerbated during times when immediate returns or herd reductions are required such as during droughts.

Anecdotal evidence suggests that there is a shift among northern grass fed beef producers towards selling older, heavier animals as they seek to utilise extra pasture in the face of reduced cow numbers. The older turnoff provides more flexibility and opportunities for staged herd reductions (for example, during drought) not possible with weaner herds, and the results presented in this paper support that shift. The current strength of the feeder steer market, compared with all other enterprises, vindicates previous recommendations (Andrews et al. 2008, Llewelyn 2001) that many producers could utilise more of the grass that they grow using steer grow out enterprises as an adjunct to their present breeding herd.

We suggest that being able to meet the market accurately and consistently will become an essential target for those producers seeking to improve gross margins above generic standards. This is very important for those producers paying high overhead costs on their property and business developments.

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Appendix

Table 1. A description of the assumptions and production parameters used to calculate gross margins for selected beef enterprises. Mortality was standardised at 2% for all operations. Abbreviations include liveweight (lwt) and carcaseweight (cwt)

Enterprise	Pasture / 100 cows	Sale targets	Weaning	Breed
Young cattle-moderate growth	251ha good native; calves-80ha improved	steers (235kg) & heifers (200kg) sold when carcasses reach 'trade' weights	82%	Any
Heavy feeder steers- 0-2 tooth	398 ha good native	steers ~440kg lwt at 18 mths ; heifers at 9 mths.	86%	British X
Inland weaners-stores	326ha good native	steers 260kg lwt; heifers 230kg lwt at 9 months	84%	British (pure or X)
EU	251ha improved 25ha oats	steers 300kg cwt and heifers 270kg cwt at 0-4th	86%	Any
Jap ox	319ha native, 92ha improved & 20ha summer forage	steers 340kg cwt (6th) and heifers 200kg cwt (0-4th)	86%	Any
Grow out weaned early calves 160-340kg:	80ha improved, 10ha winter forage / 100 str	weaner steers 4-6mths of age grown for up to 12mths, sold to domestic feedlot		Any
Grow out steers in 12 months: 240-420kg	102ha improved, 12ha winter forage / 100 str	weaner steers grown for 12 months and sold to feedlot for long (>200d) feeding		Angus, Shorthorn, Murray Grey
Grow out steers in 12 months: 240-460kg	106ha improved, 12ha winter forage / 100 str	weaner steers grown 12mths, sold ~460kg lwt for mid range (150d) feeding		British or Euro infused

Figure 1. A gross margin comparison of two beef enterprises, with steers and heifers sold either in prime condition as yearlings (dotted line) or as feeder steers and weaner heifers (solid line)

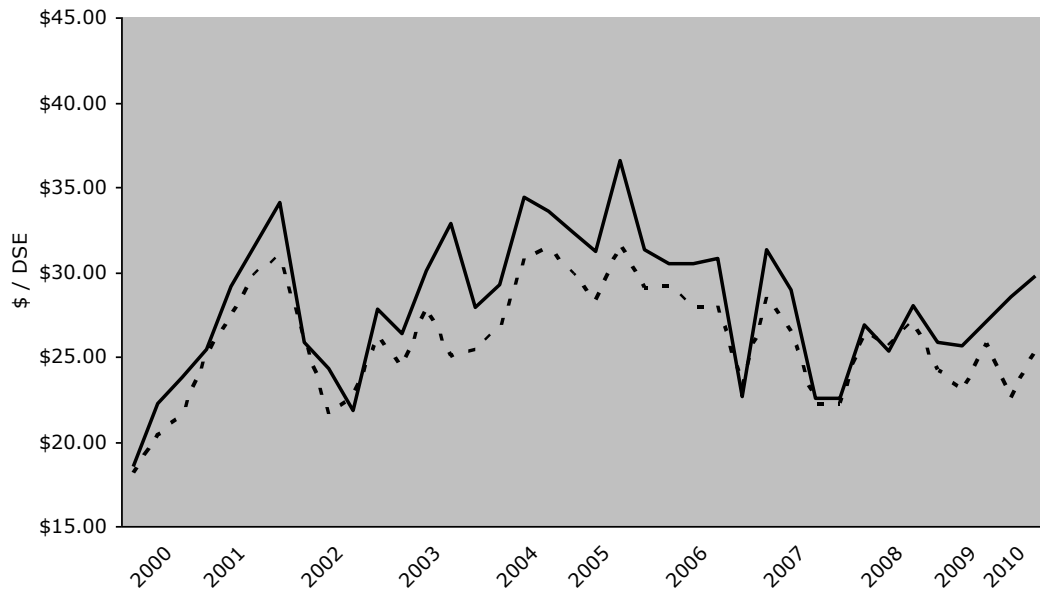


Figure 2. A gross margin comparison of inland weaner production (dotted line) with steers backgrounded for a feedlot entry weight of about 460kg liveweight (solid line)

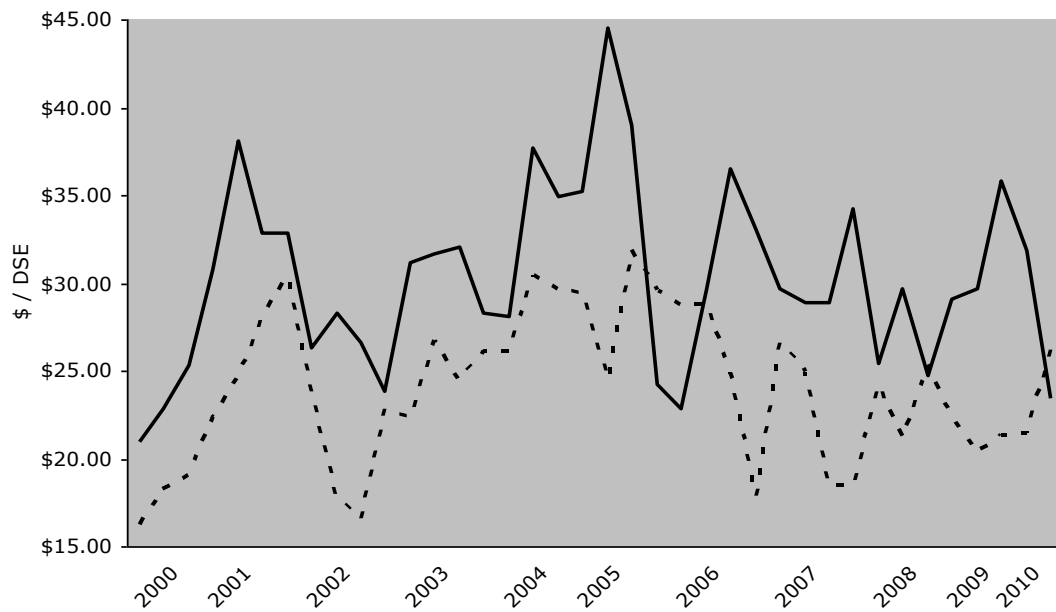


Figure 3. A gross margin comparison of EU (solid line) and Jap ox beef enterprises (dotted line)

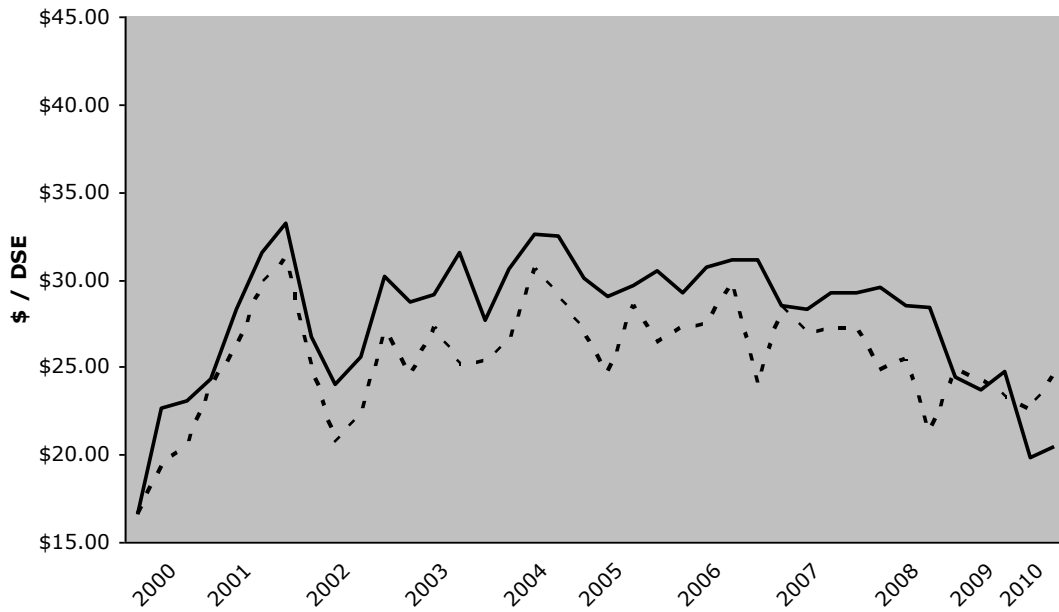


Figure 4. A gross margin comparison of three beef backgrounding operations; where early weaned steers are grown on grass prior to lotfeeding for the domestic market (dashed line) or where weaner steers are grown on grass for 12 months prior to lotfeeding for the long fed (dotted line) or mid fed Japanese markets respectively (solid line)

