Red Meat Market Report

How are global and Australian beef and sheepmeat producers performing?

GLOBAL AGRI BENCHMARK NETWORK RESULTS 2014

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Commissioned by Meat & Livestock Australia

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HIGHLIGHTS

Beef cattle

- Global beef prices are generally on the rise, driven by growing demand (especially for beef in China) and constraints on supply (especially feed, land, water and environment)

- Given the recent lift in global markets, Australian cattle prices have significant upside potential, once the drought breaks and the A$ falls

- Few countries can boast long-term profitability in beef cattle production at present, though higher beef prices improved results for most in 2013

- Hence, there are few signs of any substantial reinvestment in beef by major world producers and exporters at this stage

- While globally cow-calf enterprises were generally profitable in 2013, cattle finishing was not

- Typical Australian beef cattle farms were mostly profitable on a short-and medium-term basis in 2013, but not long-term – given Australia’s relatively high opportunity costs of land, capital (interest) and labour

- Australia has moderate to low calf weaning rates and cow herd productivity, compared with similar systems

- Australia achieves moderate to high weight gains in southern farming systems and feedlots, but low gains in extensive northern systems (affected by drought in 2013)

- Overall, Australia remains an efficient cattle and beef producer, with a moderate cost of production

- Australia’s cost of beef cattle production has risen relative to competitors in North and South America in recent years, due to a relatively high A$, high labour, land and interest (capital) costs and drought-related expenses

Overall, the 2014 agri benchmark results confirm the tough time Australian beef producers faced in 2013, due in part to a second year of widespread severe drought, rising costs and a high A$. However, the stronger global results suggest a promise of better times for Australian beef producers from 2015, especially if the drought breaks and the A$ falls. The results also suggest the potential for productivity gains generally, which no doubt are much larger for many of the poorer performing farms.
Sheepmeat

- Sheepmeat prices remain high, due to rising global demand (especially in the Middle East), the opening of China to imports and severe constraints on supply.

- Almost all typical sheepmeat farms in the 16 countries covered were long-term profitable in 2013, assisted by income from other enterprises, especially cropping (particularly in Australia) and cattle (particularly in Europe).

- On a whole farm basis, Australian sheep farms are the most profitable (in absolute US$ terms), due to the larger size and crop incomes.

- Profitability in WA was particularly high in 2013, following an excellent cropping and lambing season.

- Even without counting the income from other sources, sheep flock incomes were long-term profitable in Australia, New Zealand and Uruguay (and on some typical farms in China and Africa) in 2013.

- Australian sheep farms have relatively low losses, mortalities and wastage.

- Australian farms achieve moderate to high meat production efficiency.

- Sheep reproductive efficiency is moderate by international standards, with probable room for improvement.

- Australia remains one of the most efficient and low cost producers of sheepmeat.
INTRODUCTION

This report presents the agri benchmark network’s perspectives on recent global beef and sheep developments, the economics and drivers facing producers around the world, farm profitability (globally and in network countries) and views on likely future developments and challenges.

It then asks the question how competitive are Australian beef and sheepmeat producers and what are the main areas where our productivity differs from other countries?

The analysis and perspectives are as of mid-2014, though farm data is for the 2013 year.

WHAT IS AGRI BENCHMARK?^{1}

agri benchmark is a global, non-profit and non-political network of agricultural economists, advisors, producers and specialists in key sectors of agricultural value chains. The cattle and sheep network has over 30 member countries, covering 90% of world beef production and 55% of sheepmeat production.

The core competence of the network is in analysing production systems, their economics, drivers and perspectives.

agri benchmark aims to assist:

- **producers and their organisations** to better align future production through analysis of comparative performance and positioning;

- **non-profit organisations** (governments, NGOs, international organisations) to monitor global agricultural challenges; and

- **agri-businesses** to operate successfully through in-depth understanding of markets and customers.

agri benchmark has branches covering beef cattle and sheep, dairy, pigs, cash crops, horticulture and organic farming. Within cattle and sheep, it covers breeding and finishing enterprises (cattle cow-calf, cattle finishing, and ewes and lamb/sheep finishing). It is also unique in being able to separately measure the performance of the breeding and finishing operations even on joint breeding/finishing farms.

^{1} See [http://www.agribenchmark.org/home.html](http://www.agribenchmark.org/home.html)
The farm-level results in this report are drawn from the collection of ‘typical farm’ data in each country, and subsequent analysis and research efforts of all member countries culminating in the 12th annual *agri benchmark* conference in Turin, Italy, 5-12 June 2014.

Table 1 *agri benchmark* network participants

<table>
<thead>
<tr>
<th>Countries</th>
<th>Farms</th>
<th>New members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow-calf</td>
<td>25</td>
<td>58</td>
</tr>
<tr>
<td>Beef finishing</td>
<td>31</td>
<td>76</td>
</tr>
<tr>
<td>Sheep</td>
<td>18</td>
<td>35</td>
</tr>
</tbody>
</table>

‘Typical farms’ are farms ‘engineered’ by local producers and experts to be typical of a country’s main cattle or sheep production systems, using annual data drawn from farms in the key production regions.

Canada
Table 3 Australian and New Zealand agri benchmark typical cattle farms

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU180/65</td>
<td>(180 cows on farm/65 steers sold) – Northern tablelands NSW; Angus + sheep + wool; pasture feed base</td>
</tr>
<tr>
<td>AU200/85</td>
<td>Southern tablelands NSW; British breed; pasture feed base</td>
</tr>
<tr>
<td>AU350/150</td>
<td>Western districts Vic.; Angus; pasture, hay, oaten grain feed base</td>
</tr>
<tr>
<td>AU 360/1550</td>
<td>Northern Territory, Bos indicus; live export; pasture, mineral supplements feed base</td>
</tr>
<tr>
<td>AU560/415</td>
<td>South east Qld; Simmental X Droughtmaster; cattle + crops; pasture feed base</td>
</tr>
<tr>
<td>AU600/540</td>
<td>Northern slopes NSW; Charolais X Angus; pasture, hay, sorghum feed base</td>
</tr>
<tr>
<td>AU880/320</td>
<td>Central Qld; Bos indicus; pasture, mineral supplements feed base</td>
</tr>
<tr>
<td>AU990/375</td>
<td>Central Qld, Bos indicus; cattle + crops; pasture, oats grazing feed base</td>
</tr>
<tr>
<td>AU15K</td>
<td>(15,000 cattle sold) – South east Qld; British, Wagyu X; feedlot; concentrates, roughage</td>
</tr>
<tr>
<td>NZ375</td>
<td>(375 bulls finished &amp; sold) – East coast North Island; pasture feed base</td>
</tr>
</tbody>
</table>

Figure 2 Location of Australian typical cattle farms and beef cattle density
Global agri benchmark network results 2014

Table 4 Australian and New Zealand agri benchmark typical sheep farms

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU1250 (1250 ewes) – NSW slopes; Border Leicester X Merino, Dorset</td>
<td>sheep + crops</td>
</tr>
<tr>
<td>AU1600 – NSW Northern Tablelands; Merino, Dorset Merino</td>
<td>sheep + wool + cattle</td>
</tr>
<tr>
<td>AU2000 – NSW plains; Merino, Border Leicester</td>
<td>sheep + crops</td>
</tr>
<tr>
<td>AU2000WA – WA low rainfall; Merino, Merino and Poll Dorset</td>
<td>sheep + crops</td>
</tr>
<tr>
<td>AU3000 – Western Victoria; Coopworth X Dorset</td>
<td></td>
</tr>
<tr>
<td>AU4800 – WA medium rainfall; Merino, Merino and Poll Dorset</td>
<td>sheep + crops</td>
</tr>
<tr>
<td>AU7800 – WA high rainfall; Merino, Merino and Poll Dorset</td>
<td>sheep + crops</td>
</tr>
<tr>
<td>NZ3200 – East coast North Island NZ; Romney</td>
<td>sheep + cattle</td>
</tr>
</tbody>
</table>

Figure 3 Location of Australian typical sheep farms and sheep density
GLOBAL PRICE AND COST TRENDS

Meat prices

Global beef prices are still rising, though more gradually than in the 2009-2011 period.

The beef scene continues to reflect a tightening demand/supply situation, attributed essentially to the industrialisation and urbanisation (and associated rapid rise in middle income households) in the mass population countries of China, India and Indonesia; and recent moves by China (and to a much lesser extent, Indonesia) to address this by opening to beef imports.

At the same time, beef production (indeed meat production generally) is being increasingly constrained by scarcity of land (and shift of livestock from arable to more marginal land), adverse weather events, environmental policies, slowing productivity gains and historically high grain prices (both as a meat production cost and competitor for land).

In contrast to beef, prices for poultry and pork have been flat since 2011 and sheepmeat prices have fallen from the high 2011 peak (due, at least in part, to drought in Australia and NZ).

Beef cattle prices (in US$ terms) rose in all major countries in the 2005 to 2013 period, led by China (3.4 times), Argentina (1.5 times), Brazil (1.3 times), Indonesia (1.3 times), Uruguay (1.2 times), the UK (77%), Sweden (73%), Italy (71%) and Ireland (65%) – with the South American rise explained in part by currency appreciation against the US$ (the Brazilian real depreciated 26% relative to the A$ between 2008 and 2013).

Prices in the rest of the EU, Russia, the US and South Africa rose around 40%-50% over the same period.

OECD-FAO (2014 Outlook database) currently predict livestock prices to rise further over the coming decade, while crop prices fall initially then hold.
Beef production costs

Beef production cost (in US$ terms) have increased appreciably in almost all countries (with South Africa a notable exception) over the past eight years, led by China, Brazil, Argentina and the USA (with 50% to 190% rises). Countries with much slower cost increases (10% to 30%) include Australia, the main EU producers and South Africa. Some of this disparity is attributed to currency changes and differing feeder/store cattle price rises (one of the largest costs in cattle finishing).

Crop price rises since 2005 have been even greater than for beef (even after accounting for the latest fall) and much more volatile.

Figure 5a Global beef farm prices

Figure 5b Global beef farm prices

Figure 6 FAO monthly cereal, meat and food price indices

Source: FAO food price indices
GLOBAL PERFORMANCE OF BEEF FARMS

Few countries can boast long-term profitability on cattle enterprises at present, even though beef prices have risen. Even when net income from other sources or enterprises on the same farm (such as from crops, sheep, wool etc) are counted to yield a whole farm profit, only beef farms in Uruguay, China, Kazakhstan and Indonesia made a profit, without government payments, in 2013. European beef farms tended to make medium- and long-term losses, which become significantly more severe with the exclusion of government payments. Results were mixed in Australia, Brazil, Argentina, Columbia and the Ukraine.

While cow-calf enterprises have generally been profitable in most countries, beef cattle finishing has not been a profitable business over recent years due to the high cost of weaners and feed.

Pasture-based beef farm profitability

In 2013, with much of the north Australian cattle herd being affected by drought (depressing cattle prices for all producers), the ‘typical’ Australian beef cattle pasture-based farms monitored by agri benchmark (all of which have both cow-calf and finishing operations) were mostly profitable in the short-term, but unprofitable in the medium- and long-term.

This is a result shared with producers in South America, the only other continent with similar extensive combined cow/calf and finishing farms.

2 Beef farm enterprise income refers to income attributed to the beef cattle component of a farm. Similarly, beef cow-calf enterprise income and beef finishing enterprise income refer to income specifically attributed to the beef cow-calf and beef finishing components of the farm (calculated separately, even when combined on the same farm, such as occurs in the typical Australian pasture farms). Whole farm income refers to the combined income from all enterprises undertaken on the farm, including for example cropping or sheep.
There was, however, a large variation in the performance of the Australian ‘typical’ beef grazing farms, with the main determinants appearing to be drought severity and response and cost efficiency. Long-term losses were the worst on the agri benchmark farms with high costs and moderate production. Long-term profitability improves as farm turnover increases and costs are kept relatively low.

While the 2013 agri benchmark profit results for Australian ‘typical’ cattle farms have been mixed but generally weak, the variation in results points to the potential for profitability through further productivity gains – an observation backed by surveys of the top and bottom performing farms (see ABARES Farm Financial and Physical database3).

While 2014 profit results will probably also be adversely affected by the impact of the ongoing drought (and high A$) on local cattle prices and costs, there is considerable potential for rises in Australian farm prices and profitability from 2015, given the strong global markets and a falling A$, and assuming the drought breaks.

Feedlot profitability

In 2013, cattle feedlots generally performed better than in 2012 around the world, due to some fall in feed costs and higher beef prices. However, profit results were still mixed.

The ‘typical’ US and Canadian feedlots were found to be operating at a loss or breakeven level, as were those analysed in South Africa, Spain and Mexico. The results for South American feedlots were mixed, with the majority achieving long-term profitability. Feedlot systems that were analysed in Australia, China and Namibia were found to achieve long-term profitability levels in 2013.


4 Net profit margin on a whole farm basis is profit as a percentage of gross income from all income sources (including crops, wool, lamb etc). Short-term profit is where income (from sales and coupled government payments) covers all cash costs (including interest and family wages), medium-term profit allows additionally for depreciation, and long-term profit allows for the opportunity costs of land and other capital invested. Opportunity cost is calculated at a risk-free rate of return in each country, using the total value of assets involved in the business.
HOW EFFICIENT ARE AUSTRALIAN BEEF PRODUCERS?

Cow-calf enterprises

**Stocking rates of cow-calf enterprises**

Northern Australian cow-calf systems have relatively low stocking rates, on a par with similar rangelands of Montana and Kansas (US), Alberta (Canada), and semi-Kalahari bosveld (South Africa). However, southern Australia’s higher rainfall systems maintain high stocking rates, similar to the European and South American systems.

**Weaning rates (calves per 100 cows)**

The majority of the world’s cow-calf systems tend to maintain similar reproductive rates at around or above 90 calves per 100 cows. However, north Australian systems maintain reproductive rates similar to comparable extensive tropical cattle systems in South America (Brazil) and South Africa, which range from 50 to 75 calves per 100 cows. Southern Australian systems tend to perform comparably to European and North American systems. Depending on the costs and benefits of change, this is likely to be an area for further improvement in northern Australia.

**Total live weight produced per cow**

This ranges from 100-450 kgs globally (kg live weight (lwt) produced per cow per year) – weaners are the main part, but not all. The performance of Australian systems is in the middle and is quite diverse, ranging from 200kg to 320kg lwt, with the exception of AU-1550 (northern NT live export) that is comparable to the cut & carry systems of Indonesia, and this could potentially be an area for significant improvement.

**Weaner and cull cow prices**

Overall, Australian weaner prices are similar to those elsewhere in the pasture-based systems of the southern hemisphere (Argentina, Brazil, Uruguay and South Africa), which are around 35-50% lower than those in North America, Europe and Asia. Cull cow prices in Australia tend to be similar to those of South America, North America and Africa, but are lower than those received in Europe and Asia.
Global agri benchmark network results 2014

Total cow-calf returns (revenue)

In 2013, Australia had comparably low total revenue (returns) from cow-calf operations, due to a combination of lower weaner and cow prices and moderate production levels (weaning rates and production per cow). Countries in South America and Africa maintain similar returns, whereas the US, Canada, Asia and Europe maintain higher returns. European countries maintain significantly higher returns through government payments (both coupled and de-coupled payments).

Total cost of cow-calf production

Australia maintains a comparably low total cost of production in cow-calf systems, but similar to comparable systems in South American, some Indonesian, Chinese, Canadian and South African typical cow-calf systems. In most countries, non-factor costs\(^1\) make up 40-50% of the total cost of production, and Australia tends to have similar cost structures to that of the South Americans. Most European countries maintain total costs of production 2-3 times higher than that for the low cost countries like Australia.

Figure 10 Total cost of cow-calf production (US$ per 100kg live weight sold)

\(^1\) Non-factor costs include all the operating costs of the enterprise, both variable and allocated fixed costs.
Total costs, returns and profitability of cow-calf production in 2013

Most cow-calf systems are capable of producing short- and medium-term profits (enterprise returns less cash costs and depreciation), but only a few producers are capable of producing long-run profits (enterprise returns less total costs).

Two of Australia’s eight pasture-based farms made a long-run profit from the cow-calf portion of their operations in 2013, with the other six covering cash costs, depreciation and the majority of their opportunity costs. This would have been adversely affected by drought, which directly impacted the five ‘typical’ farms in northern NSW, Queensland and the NT, and indirectly impacted all farms through the resultant lower cattle prices.

Generally, European systems are only capable of maintaining short-run profits through the additional income provided by government payments (coupled payments), but still do not cover opportunity costs, with the exception of France in 2013.

In comparison…Australian cow-calf systems have:

- More diversified whole farm systems (maintaining both cow-calf and finishing systems within the same business)
- Moderate-to-low weaning rates and moderate-to-low productivity per cow, especially in northern systems
- Lower revenues due to both lower weaner and cull cow prices
- Maintain some of the lowest cost cow-calf systems in the world
- Good short-, medium- and long-term profitability
- High labour productivity (kg live weight produced per hour of labour input) to compensate for high wage rates (although in some countries cost of wages are beginning to rise to Australian levels)
There was some improvement in beef cattle farm finishing enterprise incomes in 2013 across almost all countries.

While beef finishing farms in almost all countries made short-term (cash) profits in 2013 (one exception being eastern Australian farms in drought) and mid-term profits (covering cash costs and depreciation), few made a long-term profit (do not cover the opportunity cost of inputs).

**Live weight at start and weight at end of finishing phase**

Data indicates that many European systems (predominantly silage/grain based) have long finishing periods and high final weights (600-700kg finished live weight) with very low comparable starting weights (~ 100kg lwt). These cattle come from dairy herds and are either Holstein or dual purpose breeds, like Fleckvieh.

Australian systems are similar to North American and UK systems, which have similar total weight gains in finishing (400-600kg finished live weight) and similar entry weights (200-300kg lwt). South American systems tend to be in-between (150-200kg lwt at entry with around a 500kg finished weight). In all these countries, the vast majority of feeder cattle come from specialist cow-calf operations, hence animals are older and heavier when they enter the finishing process. Some Australian and South American systems on pastures are characterized by long finishing periods of 500-1000 days.
Daily and net weight gain

There is a clear reflection between the daily weight gains observed in the data and the observed changes in liveweight and the extent of the finishing period. The ‘typical’ Australian feedlot chosen ranked 1st (AU-15k, SE Qld) on a daily weight gain basis in 2013, exceeding feedlots in the US, Brazil, South Africa, Canada, Argentina and China. Notably, around half of the European silage based systems achieved similar or higher weight gains than the lowest performing feedlots, from China and Argentina.

Our pasture based systems had very mixed results for 2013, as our best pasture based systems rank 1st (AU-540, NW NSW), 2nd (AU-65, NSW northern tablelands), and 5th (AU-85, NSW southern tablelands) when compared to other pasture systems on daily weight gain. Due to drought conditions, the northern Australian systems recorded some of the lowest weight gains.

Comparison of beef prices in 2013

Beef carcass prices generally ranged between US$300 and US$600/100kg lwt across the globe in 2013, with the exception of closed or protected markets (through both tariff and non-tariff trade barriers), such as China and Indonesia, which experienced substantial increases in beef prices. European beef prices increased marginally from 2012 and are relatively consistent internally and higher than southern hemisphere and North American prices (maintained by import barriers). Australian, southern African and South American pasture-based systems receive some of the lowest prices (reflecting lower costs and, in Australia’s case, drought), which were lower than those received in 2012.
Costs of finishing

The high A$ and the drought have generally raised the cost of Australian beef production in recent years, in US$ terms, relative to farms in North America, South America and Europe.

Generally, the lowest cost finishing systems exist in North America and South America. For the majority of the world’s finishing systems it costs around US$1.60-$6 per kg live weight sold in 2013. The lowest cost finishing systems exist in South Africa, NZ, and Brazil. AU-15K (SE Qld feedlot), AU-360 (Northern Territory) and AU-375 (Central Qld) maintain comparably low costs (similar to South America and the US), whereas the other Australian systems are comparable to the lower cost European finishing systems.

The highest cost systems now occur in Europe (Germany and UK) and Asia (China and Indonesia).

Total costs and farm rankings

Feedlot and pasture based finishing systems tend to have lower costs than silage systems. Non-factor costs dominate in each finishing system (of which 40-60% is the cost of transferred/purchased livestock), although land, capital and labour contribute more significantly within pasture and silage systems per unit of output.

The Australian systems, whether feedlot or pasture based systems, had a comparably high total cost of finishing (in US$) in 2013, recently elevated by the high A$ and livestock (weaner) prices.

Finishing costs, returns and profitability

The majority of beef finishing systems around the world did not generate high enough returns to cover total costs of production in 2013 (long-run costs, including cash, depreciation and opportunity costs) and, in many cases, did not cover medium-term costs of production (cash costs + depreciation), but managed to break-even against short-term (cash costs) costs.
Global agri benchmark network results 2014

Operating losses on cattle finishing were made in the US, Canada and around half of the European systems. The notable exceptions were in China, NZ and Indonesia. In China and Indonesia, although costs have increased rapidly, so have finished cattle returns over the last 12 months.

Only four of the eight Australian pasture-based farms covered short-term cash costs in 2013, due in part to the impacts of drought and lower cattle prices, and no farms covered total costs, with the exception of the Australian feedlot. Australian systems, although maintaining relatively low cash costs of production, have high opportunity costs (mainly family labour and land). The Australian feedlot made a long-term profit, in contrast to its counterparts in the US, Canada, Brazil, Argentina and South Africa.

It is also noticeable, that in Europe even with the remaining low levels of government payments (coupled payments), cattle finishing systems did not produce a profit, unlike cow-calf systems (which received higher levels of government payments).

In comparison…Australian cattle finishing systems have:

- Moderate to high weight gains in feedlot and southern cattle systems, but low weight gains in northern cattle systems, partly due to drought.
- Received below average prices when compared to other countries, again reflecting the impact of drought on supply and the high A$.
- Low to moderate costs of production when ranked against most pasture, feedlot and silage beef finishing systems – having risen relative to South and North American competitors in recent years (in US$ terms), mainly due to currency movements.
- Returns that do not, generally, cover the long-term costs of operation – in keeping with most beef finishing systems around the world.
- Profits shifting between finishing and cow-calf systems, depending on weaner prices/values.
- High labour and land opportunity costs, which tend not to be covered by beef returns.
SIGNS OF NEW INVESTMENT IN BEEF CATTLE FARMS

The lack of long-term profitability, together with other intelligence, suggests that new investment in beef production in the big beef exporters of South America, North America and Australia is likely to remain low in the short-term.

There are tentative signs of cattle herd rebuilding in North America, China and Brazil, but few signs elsewhere (with falls in Australia and Argentina) and the latest EU CAP reforms (especially reduced single farm payments in favour of per hectare and ‘green’ payments) seem likely to continue the long-term reduction in EU cattle herds and production (partly offset by a likely rise in dairy bulls, following the abolition of EU milk quotas in 2015).

The lack of consistent long-term profitability, higher returns to cropping (despite recent grain price declines) and continued climate volatility in many countries (especially drought) seem likely to keep global beef supply response to the latest beef and cattle price rises modest.
GLOBAL PERFORMANCE OF SHEEP FARMS

Global demand for sheepmeat has been rising steadily over recent decades, driven, in the developing world, by population and income growth, the expansion of modern retailing, foodservice outlets and cold storage facilities and the impacts on diets of urbanisation and westernisation and, in developed markets (eg in Europe, the US, Canada and Japan), by interest in lamb as an alternate niche product. The rise in demand has been most noticeable across growing Muslim countries (especially the Middle East and North African countries) where sheep and goat meats are traditional to diets and ceremonies.

At the same time, sheepmeat supply has fluctuated in line with the increasingly fickle climate and due to instability in the price of companion products (especially wool and crops), as well as increasing environmental constraints (most noticeably in China).

Hence, sheepmeat prices have risen appreciably in the past 20 years, but have been much more volatile than for other meats, including beef. Adding to this global price volatility is the fact that only around 8% of world sheepmeat is traded and over 80% of traded product comes from only two suppliers, Australia and New Zealand.

This means that whenever global supply has fallen, or even failed to expand, especially in Australia and New Zealand, sheepmeat prices have quickly jumped to a new level. The latest peak was the most dramatic of all, reaching highs in 2011 following simultaneous supply falls in Australia and New Zealand.

Sheepmeat prices settled back in 2012 and 2013, as simultaneous droughts in Australia and New Zealand saw supply rise on world markets. Now prices are again on the rise as the recent fall in Oceania flocks is reflected in lambs available and sheepmeat production and as China enters the market as a major importer, following years of stagnant sheepmeat supply and record internal prices.

The rising demand and greater constraints on supply faced by sheep enterprises relative to cattle has helped to produce and maintain long-term sheepmeat profitability across almost all countries (in contrast to cattle), but without any imminent threat of a sustained supply response to burst prices and profits.

Whole farm profitability (‘000 US$)

All but 3 of the 35 typical farming systems covered globally (in 16 countries) managed to make a profit at the whole farm level in 2013, although this is partly dependent on other enterprises or non-farm returns (coupled and non-coupled government payments).

On a whole farm profit basis (medium-term profitability), Australia’s ‘typical’ sheep farms were the most profitable (in US$ terms), in part due to their sheer size and crop incomes. Two of the WA farms, AU-4800 and AU7800, were the most profitable globally, followed by the NZ farm and AU-2000 (central NSW).
Australian sheep farms generally maintain higher levels of profitability due to the diversification of the typical mixed farming systems and their scale. In 2013, cropping returns were generally above average due to both favourable prices and yields, especially in the WA systems.

On average, European farms achieved a net profit margin of -63% without government payments, but with government payments achieved an average net profit margin of 21%, whereas Australian farms averaged 30%.

**Sheep flock costs, returns and profitability (US$/100kg lwt)**

When the 2013 profitability of the sheep flock is examined, without taking into account income from other enterprises on the same farm or government payments, the global financial performance is still positive but not as good as it is at a whole farm level.

Many countries, even with significant government payments (excludes de-coupled payments), are not profitable in the long-term. The exception to this is Australia, Uruguay, New Zealand and some systems in China and Africa. The profitability of sheep flocks in many other parts of the world was similar to that of 2012, where total returns failed to or only just covered short-term cash costs, even though total revenues had risen.

In 2013, all of the typical sheep flocks analysed in Australia covered short- and medium-term costs (includes depreciation), with three of them (AU-2000, AU-4800 and AU-7800) covering long-term costs (opportunity costs), with the remainder contributing to, but not fully covering opportunity costs.
HOW EFFICIENT ARE AUSTRALIAN SHEEPMEAT PRODUCERS?

Total returns (US$/100kg lwt)

Australian sheep systems are diversified in comparison to the rest of the world, with wool and cropping being major sources of additional income. The majority of Australian systems are in mixed farming zones, which also represent areas of highest sheep production and flock sizes. Wool income is only a significant contributor to income in Australia, NZ, China, Uruguay and South Africa systems. Other countries, like the UK, NZ and Uruguay, also commonly maintain diversification with cattle enterprises.

Australian and NZ typical sheep farms are the largest by global standards, having from 2 to 8 times higher total returns (revenue) from the business.

There is large global variation in total returns (revenue) per 100kg lwt sold. Countries like Germany, Spain, Ireland and France (EU countries) receive significant amounts of government payments. These are either Whole Farm Payments (Germany, Ireland), Livestock Payments (France FR-470, Spain ES-1500) or a combination of the two.

In Australia, some of the eastern typical farms had reduced returns in comparison to 2012, reflecting drought, whereas generally the western typical farms had increased sheep enterprise returns, under favourable seasonal conditions. For the Australian Merino based typical farms (AU-1600, AU-2000WA, AU-4800 and AU-7800) wool returns made up over 50% of total sheep flock returns, which is only matched by two of the South African farms.

Total liveweight sold per ewe (kg lwt per ewe)\(^6\)

Generally Australian systems produce above average kilograms of meat (live weight) per ewe, with the exception of AU-1600 which is predominantly based on a fine wool Merino flock. The highest production per ewe came from the two dedicated lamb producing flocks, AU-1250 and AU-3000, which are comparable to the highest meat producing flocks in Europe.

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\(^6\) Total live weight sold per ewe is generally dominated by the sale of slaughter lambs in most production systems, although a few exceptions exist where there are well established finishing systems (UK, Algeria and Tunisia).
Low levels of production per hectare tend to come from regions with lower rainfall and rangelands environments. Moderate to high productivity occurs in higher rainfall regions across Europe, Australia and NZ. Very high land productivity occurs in systems in Mexico and Tunisia, where animals are housed.

Comparatively, Australian farms found in lower rainfall zones of WA and NSW are also similar to Uruguay, China, Morocco and parts of Europe. The higher rainfall farms found in south west WA, western Victoria and central NSW have comparable land productivity to European, UK and NZ systems.

**Losses of ewes (annual) and lambs (birth to weaning)**

Australia tends to have similar ewe and lamb losses to most other regions of the world, with the exception of South Africa, Brazil and France. In South Africa this is predominantly caused by predators, particularly the Jackal, Brazil the rangelands systems under which they run, and in France, due to their intensive multiple lambing systems, high proportions of multiple births, and a shift in focus on to meat production with reduced emphasis on mothering ability. Ewe losses globally tends to vary between 2% to 7%, while lamb losses varies from 2%-17%, with Australian systems maintaining ewe and lamb losses at around 6% or less.

**Weaned lambs per 100 ewes per year**

European farms tend to have higher weaning rates than Australian farms, primarily due to more prolific breeds in addition to nutrition (supplementary feeding), or multiple lambings as occurs in France. Australian farms tend to maintain similar weaning rates to more rangeland or less-developed production systems where nutrition and/or genetics may be constraints. This, more than likely, presents the area of greatest opportunity for Australian production systems, depending on the cost-effectiveness of increasing weaning rates, although flocks from higher rainfall regions (AU-1250 in central NSW and AU-3000 in western Vic) achieve comparable weaning rates to the representative European and NZ systems.
Lamb growth rates – birth to weaning and/or slaughter (grams lwt/day)

Lamb growth rates on typical Australian farms varied significantly, though Australian systems generally maintain above average growth rates for animals being sold or slaughtered at weaning – comparable to most global regions, including Europe and NZ.

However, for lambs grown out beyond weaning (slaughtered later), Australian growth rates are mixed but still average above those in NZ and Brazil (but below those in the more intensive European meat lamb production systems).

Overall, mean global weaning age was around 90-150 days, with values ranging from 45-60 in Spain and Mexico (due to very light slaughter weight markets) and Algeria (due to lamb finishing systems); and up to 180 days in Germany (due to on-farm lamb finishing) and Namibia (nutritional and management constraints).

Cash and total costs\(^7\) of meat production (US$/100kg lwt)

It is noticeable that many countries have well over US$2/kg lwt cash costs. Australian systems are well represented in the <US$2/kg lwt category to cover cash costs (with the exception of AU-1600), whereas, of all the farms covered globally, only one Australian and South African farm, Uruguay and NZ have total costs <US$2/kg lwt.

The changes in total costs of sheep meat production across the world from 2012 to 2013 were mixed. Costs fell in Australia (average across farms of an 8% reduction) and Africa (12%); and reduced marginally in the America’s and NZ (2%), whereas in Europe and MENA costs rose by 4% to 7%. This is in part due to drought in MENA countries and the lack of availability of supplements after a wet spring in European countries. In Australia, a large proportion of the costs of drought conditions in some of the eastern systems during the latter part of 2013 are expected to be incurred again in 2014.

\(^7\) The cash or non-factor costs represent largely variable costs directly associated with the enterprise. Feed and machinery are the dominant non-factor costs in Europe, with feed costs predominating everywhere else, except AU, NZ, CN UY and NA. Other inputs to ewe enterprises are directly allocated cash costs, such as enterprise specific wages (shearing, marking etc), and these represent major costs to Australian systems. Animal purchase costs are also important in AU-1250 due to being a non-self-replacing system (i.e. buys replacement ewes). Total long-run costs allow for depreciation and opportunity costs (including labour, land and capital).

Figure 22 Lamb growth rates for store and slaughter lambs: from birth to weaning or slaughter (g lwt/day)
The significant outlier to the changes in costs of production is China, where the total costs of sheep production have risen by 20% in the last 12 months, primarily due to increased costs of labour with hourly labour costs doubling, albeit from a very low level.

**Total costs** of meat production (US$/100kg lwt)

Overall, Australian farms maintain a low total cost of meat production, with the exception of AU-1600 (NE NSW, due to high land and non-factor costs). New Zealand, Uruguay and some farms in China, Namibia and South Africa also maintain low total costs. In most countries, 50%-60% are the non-factor costs or the operational costs of running the enterprise. Feed, machinery and fuel represent the largest non-factor costs in European and some South African systems, with feed being the predominant cost in MENA countries, and animal purchases in China being the major non-factor cost. It is quite mixed for all other parts of the world.

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8 Total costs include all allocated whole farm costs, as well as opportunity costs for labour (family labour), land and capital used. This represents a long-run cost of production. For capital, land and labour costs it includes opportunity costs of land, non-land assets and family labour (opportunity costs are calculated using a risk-free rate of return).

9 In China, land cost is difficult to estimate due to farmers maintaining only the right of use for 30 years, whereas renting usually only occurs for 12 months at a time.
In comparison…Australian sheep systems have:

- Low losses, mortalities and wastage in the system
- Moderate to high meat production efficiency
- Moderate reproductive efficiency - with potential for further improvement through nutritional management and genetics - if economic to do so
- Above average growth rates pre weaning, but post-weaning about average
- High labour costs, but maintain excellent labour productivity
- Comparably low sheep costs of production
- Good sheep enterprise profitability
- Top whole farm profitability due to diversification and scale