Red Meat Market Report

How are global and Australian beef and sheepmeat producers performing?

GLOBAL *AGRI BENCHMARK* NETWORK RESULTS 2015

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Commissioned by Meat & Livestock Australia

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HIGHLIGHTS

Beef cattle

■ Global beef prices were generally on the rise into 2014, driven by rising demand and constraints on supply (especially feed, land, water and environment).

■ Relative to recent global levels, Australian cattle prices had some significant catching-up to do, following the impact of the prolonged drought and a high A$.

■ Few farms in the agri benchmark network could boast long-term profitability in beef production in 2014, though higher beef prices improved results for most.

■ While cow-calf enterprises were generally profitable in 2014, cattle finishing was not, although it had improved from 2013 levels.

■ Typical Australian beef farms were mostly profitable on a short-and medium-term basis in 2014, but not long-term - given Australia's relatively high opportunity costs of land, capital 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, but low gains in extensive northern systems.

■ Overall, Australia remains an efficient beef producer, with a moderate to low cost of production.

China

Sheepmeat

■ Sheepmeat prices remain comparatively 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 2014, 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 diversification (crop incomes).

■ Even without counting the income from other sources, sheep flock incomes were mostly long-term profitable in Australia, New Zealand, China and Uruguay (and on some typical farms in Africa) in 2014.

■ 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 if economic to do so.

■ Australia remains one of the most efficient and low cost producers of sheepmeat, with total costs of production (in US$ terms) declining year-on-year since 2011.

Australia

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-2015, though farm data is for the 2014 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 and has been producing the results of comparative analysis over the last 13 years.

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

Global *agri benchmark* network results 2015

Figure 1 Countries in the agri benchmark network

Source: *agri benchmark*

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 13th annual agri benchmark conference in Valledepur, Colombia, 10-18 June 2015.

Table 1 *agri benchmark* network participants

	Countries	Farms
Cow-calf	25	60
Beef finishing	30	75
Sheep	15	35

Canada

Global *agri benchmark* network results 2015

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

AU65/180 (65 steers sold/180 cows on farm) – Northern tablelands NSW; Angus + sheep + wool; pasture feed base
AU85/200 – Southern tablelands NSW; British breed; pasture feed base
AU150/350 – Western districts Vic.; Angus; pasture, hay, oaten grain feed base
AU 360/1550 – Northern Territory, Bos indicus; live export; pasture, mineral supplements feed base
AU380/540 – South east Qld; Simmental X Droughtmaster; cattle + crops; pasture feed base
AU540/600 – Northern slopes NSW; Charolais X Angus; pasture, hay, sorghum feed base
AU320/880 – Central Qld; Bos indicus; pasture, mineral supplements feed base
AU900/2350 – Central Qld, Bos indicus; cattle + crops; pasture, oats grazing feed base
NZ375 (375 bulls finished & sold) – East coast North Island; pasture feed base

Figure 2 Location of Australian typical cattle farms and beef cattle density

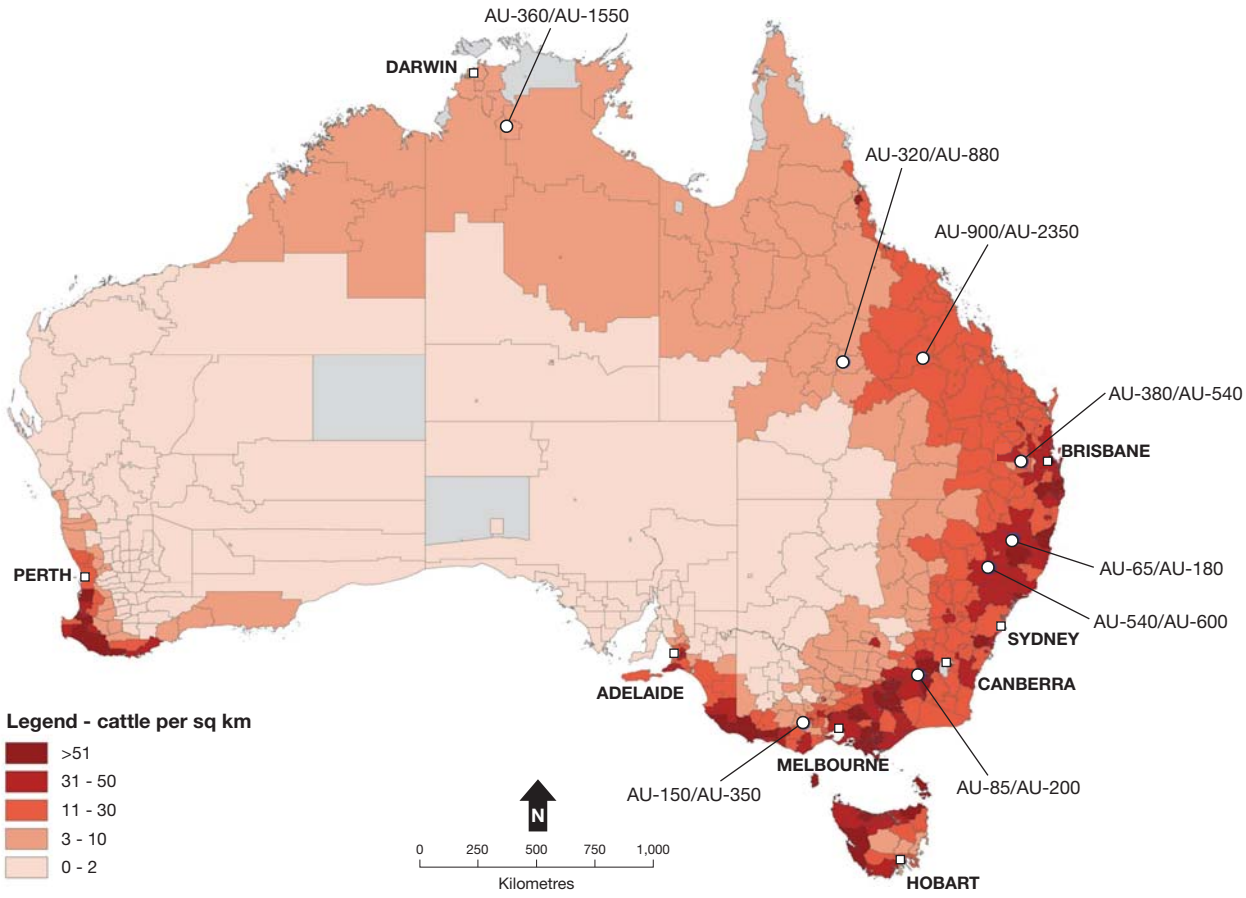
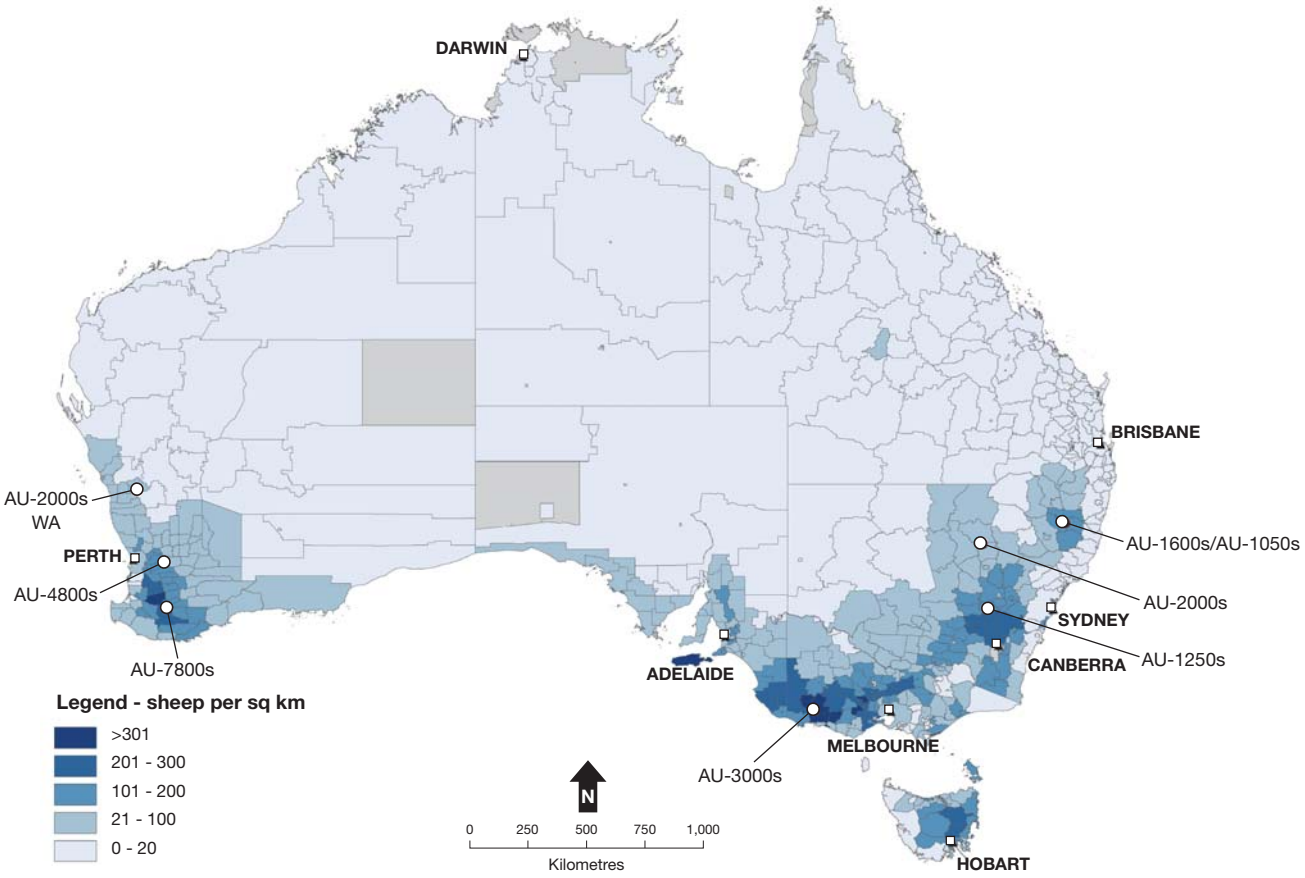


Table 4 Australian and New Zealand *agri benchmark* typical sheep farms

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

Figure 3 Location of Australian typical sheep farms and sheep density



GLOBAL PRICE AND COST TRENDS

Meat prices

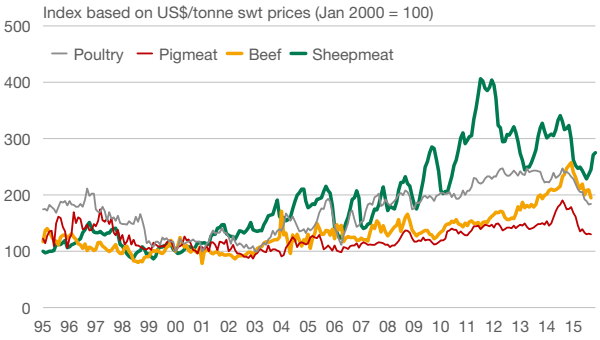
Global beef prices are still rising overall, though more gradually than in the 2009-2011 period and with a slight decline into 2014-2015 for all meats. Beef prices have had the strongest recovery of all meats during the latter part of 2015.

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 rising grain prices during 2006-2013 (both as a meat production cost and competitor for land).

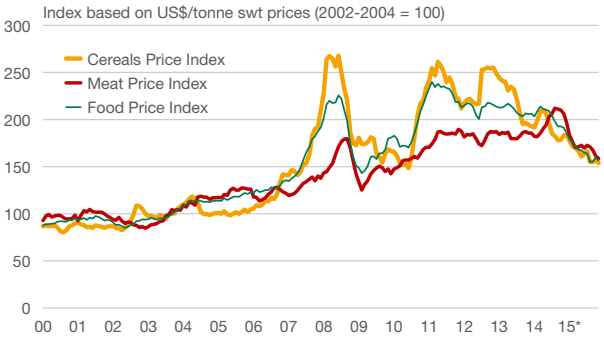
In contrast to beef, prices for poultry and pork were flat over 2011-2014 and recently declined, whereas sheepmeat prices have fallen from the high 2011 peak (due, at least in part, to drought in Australia and NZ).

Figure 4 FAO monthly meat price indices



Source: FAO meat price indices

Figure 5 FAO monthly cereal, meat and food price indices



Source: FAO food price indices

* to November

Beef prices (in US$ terms) rose in all major countries in the 2006 to 2014 period, led by China (4.4 times), Argentina (2.5 times), Brazil (2.3 times), Uruguay (1.9 times), USA/Canada (1.8 times with a strong rally over the past 2 years) and Indonesia (1.7 times), with the South American rise explained in part by currency appreciation against the US$. Prices in the rest of the EU, Russia, and Colombia 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. Poultry meat production is also predicted to grow fastest, followed by pork, beef and sheep. Comparatively, poultry and pork production globally is around twice as high as global beef production, and 5-6 times higher than global sheepmeat production.

Global sheep meat production is forecast to increase 5% by 2020. Increases are expected in China (10%), India (11%), Australia (17%), Nigeria (32%), with a decrease in NZ (-1%) due to competition from dairy and forestry. Sheep production for most countries is dominated by domestic consumption except Australia and NZ, which trade 80-85% of the World's sheep meat. EU sheep numbers are decreasing due to decoupling of payments and the impact on profitability with the trend forecast to continue. Sheep meat consumption generally decreased over the last decade in north and south America, the EU, Australia and New Zealand, but increased substantially throughout the middle east/Eurasia, Africa, India and China.

GLOBAL PERFORMANCE OF BEEF FARMS

Few farms in the network could boast long-term profitability on cattle enterprises in 2014, even though beef prices had 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, Argentina, China, Kazakhstan, Ukraine and Indonesia made a profit[2], without government payments, in 2014. This represents an improvement from 2012 and 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, and Colombia.

While cow-calf enterprises in the agri benchmark network 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.

[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 profit refers to the combined income from all enterprises undertaken on the farm, including for example, cropping or sheep, net of the costs of operation.

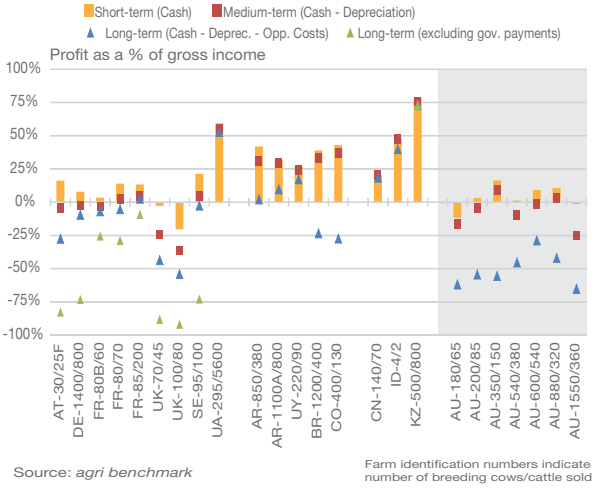
Pasture-based beef farm profitability

In 2014, with much of the north Australian cattle herd 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, with around half profitable or breakeven in the medium term, but all unprofitable in the long term.

There was, however, a large variation in the performance of the Australian 'typical' beef grazing farms, with the main determinants appearing to be farm size, location (drought severity) and cost efficiency. All the Australian agri benchmark farming systems being monitored experienced long-term losses. Although, long-term profitability improves as farm turnoff increases and costs are kept relatively low, with the largest Queensland farm (turning off 900 cattle) returning a good medium-term profit in 2014, despite the ongoing drought.

In 2014 all of the Australian systems achieved a short term profit margin, and three achieved a medium term profit (Western Districts of VIC, and two in Central QLD). Another three systems (Southern Tablelands of NSW, SE Qld, Northern Slopes of NSW) were close to break-even in the medium term, with the Northern Territory system generating the lowest medium and long-term returns.

Figure 6 Whole farm net profit margins combined cow/calf and finishing cattle enterprises[3]



Source: *agri benchmark*

Farm identification numbers indicate number of breeding cows/cattle sold

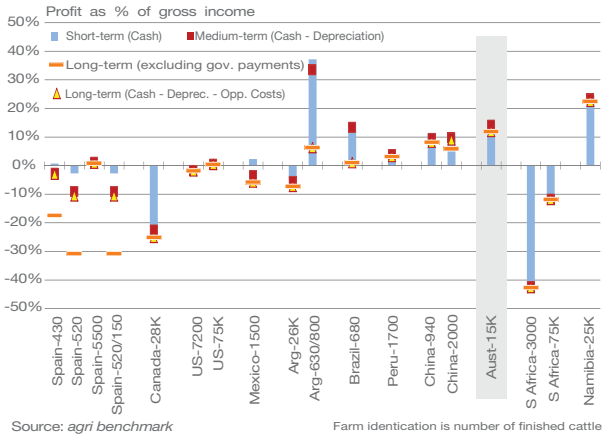
Germany

[3] 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 costs on capital such as land, is calculated using a market leasing rate in each country.

Feedlot profitability

In 2014, cattle feedlots generally performed better than in 2012 and 2013 around the world, due to some fall in feed costs and higher beef prices. However, profit results were still mixed.

Figure 7 Short, medium and long-term net profit margins for beef feedlots



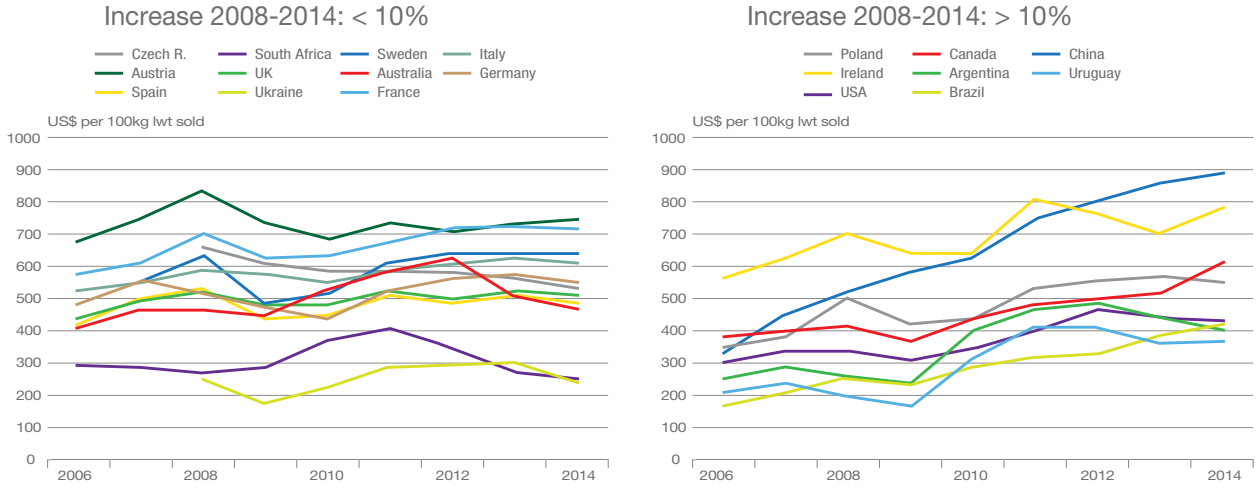
Source: *agri benchmark* Farm identication is number of finished cattle

The Canadian feedlot analysed was found to be operating at a loss in the short and long-term (despite experiencing significant increases in beef prices), as were those analysed in South Africa, Spain and Mexico. The results for South American feedlots were mixed with the majority achieving medium-term profitability (excluding two in Argentina). Feedlot systems that were analysed in the US, China, Peru, Namibia and Botswanna were found to be achieving long-term profitability in 2014.

Beef production costs

Beef production costs (in US$ terms) have increased appreciably in almost all countries (with South Africa and the Ukraine notable exceptions) over the past eight years, led by China (37.5% p.a. since 2006), Brazil (31% p.a.), Argentina (23% p.a.) and Ireland (18% p.a.). Countries with much slower cost increases (<10% p.a.) 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). In Australia the volatility in costs of finishing can also be partly attributed to variable cost of feed under drought conditions.

Figure 8 Cost developments in beef production 2006-2014



Source: agri benchmark

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 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.

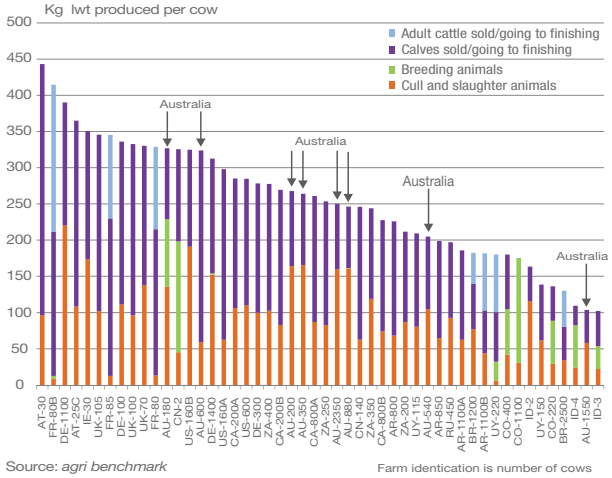
Weaning rates (calves per 100 cows)

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), South Africa and Indonesia, which range from 50 to 80 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 150-450 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 the northern Australian system (AU-1550 northern live export) that is comparable to the cut & carry systems of Indonesia at around 100kg lwt per cow, and this could potentially be an area for significant improvement. This indicator is driven by reproductive rates, generation interval, growth rates and turn-off weights.

Figure 9 Total kg live weight produced per cow



Source: *agri benchmark*

Farm identication is number of cows

Weaner and cull cow prices

Overall, Australian weaner prices are similar to those elsewhere in the pasture-based systems of the southern hemisphere (Colombia and South Africa), but 30-40% lower than prices in Brazil, Argentina and Uruguay; and less than half of prices received in the EU, China and Indonesia. In 2014 Australian prices were only 25-30% of those received in North America. Cull cow prices in Australia tend to be similar to those of South America and Africa, but are only 20-35% lower than those received in North America, Europe and Asia.

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[4] 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)

Source: *agri benchmark*

Farm identication is number of cows

Labour costs and productivity

Labour costs in Australia are amongst the highest in the world, but have declined between 2013 and 2014 in US dollar terms. Australia's average wages paid for employed staff in 2014 is around US$21/hr, with the opportunity cost of family labour around US$23/hr. European, North American and South American countries averaged $17/hr (excluding Russia @ $5/hr), $20/hr (Canada averages $26/hr), and $9/hr respectively. Taking into account the productivity of the labour (labour costs per 100kg lwt beef produced), the contribution of labour costs to the production of beef from Australian Cow-calf systems is similar to that achieved in some South America, US, Asian and South African systems, where labour is relatively cheaper. European systems have high labour productivity costs due to low productivity per unit of labour input, whereas Canada has high labour costs and lower productivity than Australian systems.

[4] Non-factor costs include all the operating costs of the enterprise, both variable and allocated fixed costs.

Global *agri benchmark* network results 2015

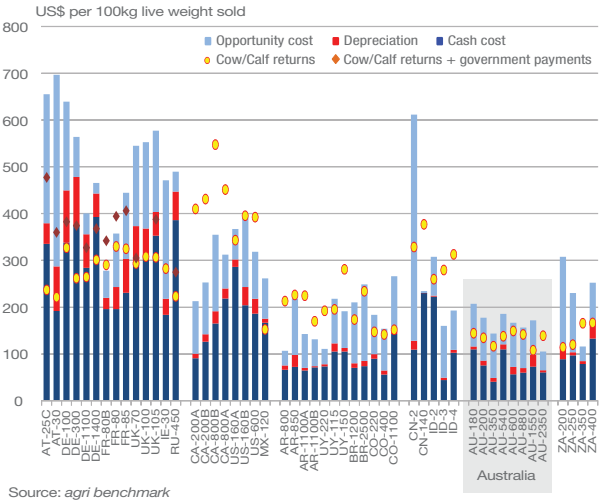
Total costs, returns and profitability of cow-calf production in 2014

The South American and Australian systems, and some Asian and South African, maintain the lowest cash costs and total costs. 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).

All of Australia's eight pasture-based farms achieved medium-run profits from the cow-calf portion of their operations in 2014, with only one (AU-2350) covering cash costs, depreciation and their opportunity costs. Even though 2014 recorded significantly lower cattle prices in Australia than in most other countries, the result is an improvement on 2013 profitability levels. Only Canadian and some systems in the US, Argentina, Uruguay and Asia cover their opportunity costs.

Generally, European systems are high cost systems and most are not capable of maintaining short or medium-run profits in 2014, with the exception of France and Ireland. With additional income provided by government payments (coupled payments), most cover cash costs and depreciation, but only two French systems cover their opportunity costs.

Figure 11 Costs, returns and profitability of cow-calf production 2014 (US$ per 100kg live weight sold)



Source: *agri benchmark*

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 which have comparatively low reproductive rates, extended generation intervals, lower growth rates and turn-off weights.*
- *Low revenues due to significantly lower weaner (30% lower than South America and only a third of prices received in the EU and North America) and cull cow prices.*
- *But, continue to maintain, year on year, some of the lowest cost cow-calf systems in the world.*
- *Good short and medium term profitability was achieved in all Australian systems during 2014, which is an improvement on 2013.*
- *High labour productivity (kg lwt produced per hour of labour input) to compensate for high wage rates (although many countries cost of wages are beginning to rise to Australian levels, largely driven by exchange rates, Canada currently has the highest labour costs)*

Cattle finishing enterprises

There was some improvement in beef cattle farm finishing enterprise incomes in 2013 across almost all countries.

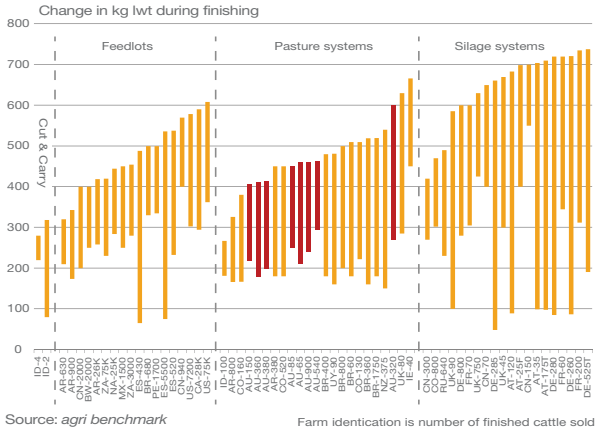
While beef finishing farms in almost all countries made short-term (cash) profits in 2013 (one exception being eastern Australian farms in drought) and mid-term profits (covering cash costs and depreciation), few made a long-term profit (do not cover the opportunity cost of inputs).

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.

Figure 12 Change in live weight (kg) and finishing period (days)



Source: *agri benchmark*

Farm identication is number of finished cattle sold

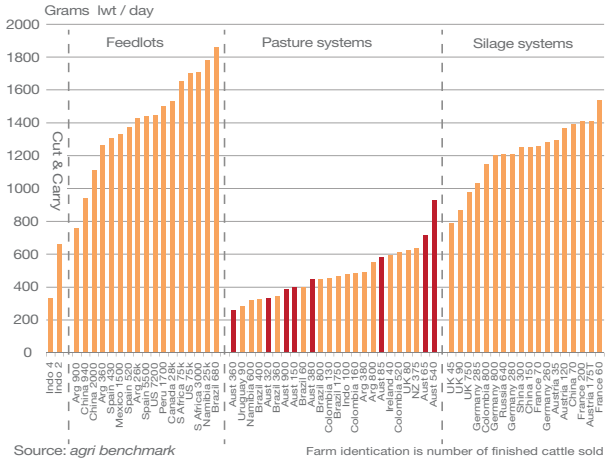
UK

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. As would be expected, most feedlot weight gains exceed those of achieved in pasture and silage systems. 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 2014, as our best pasture based systems rank 1st (AU-540, NW NSW), and 6th (AU-85, NSW southern tablelands) when compared to other pasture systems on daily weight gain. Northern Australian systems continue to record some of the lowest weight gains (AU-360 & AU-320) and are similar to weight gains achieved in South American and African systems.

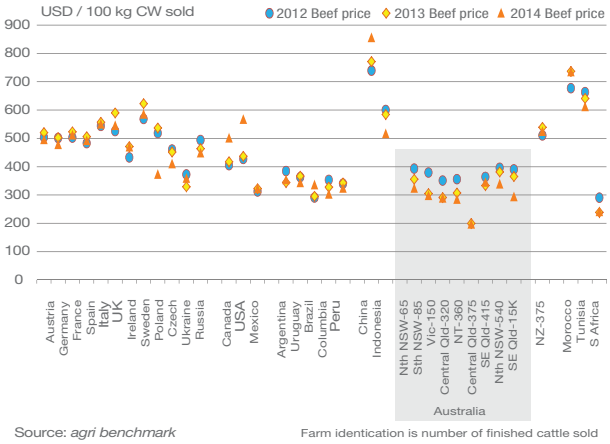
Figure 13 Daily Live weight gain (grams/day)



Comparison of beef prices from 2012 to 2014

Beef carcass prices generally ranged between US$300 and US$600/100kg cwt across the globe in 2014, with the exception of closed or protected markets (through both tariff and non-tariff trade barriers), such as China and Indonesia, where China experienced substantial increases in beef prices, and Indonesia a decline. European beef prices generally decreased marginally from 2012-2013 and are relatively consistent internally and higher than southern hemisphere prices (maintained by import barriers). Canada and the USA have both experienced significant increases in beef prices from 2013 to 2014. Australia, southern Africa and South American pasture-based systems receive some of the lowest prices (reflecting lower costs and, in Australia's case, drought and cattle over-supply), which were around the same levels as in 2013, but lower than those received in 2012.

Figure 14 2012-2014 beef prices received (US$/100kg lwt sold)



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 the Americas and Europe.

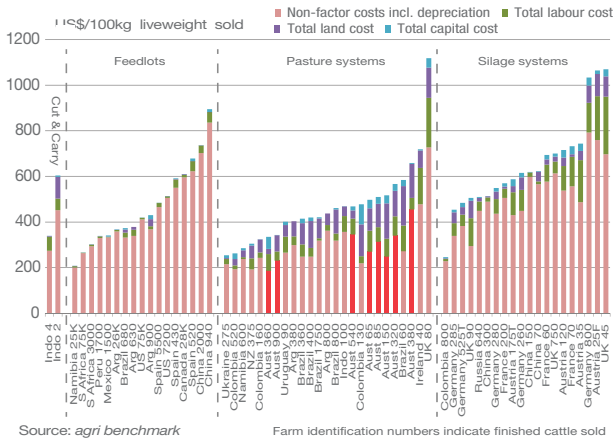
For the majority of the world's finishing systems it costs around US$2-$7 per kg live weight sold in 2014. This represents a slight increase on 2013 costs. The lowest cost finishing systems exist in Africa, NZ, and South America. AU-360 (Northern Territory) and AU-900 (Central Qld) maintain comparably low costs (similar to South America and NZ), whereas the other Australian systems are comparable to the lower cost European finishing systems. The highest cost systems continue to occur in the Europe (Germany, Austria and the UK) and Asia (China and Indonesia).

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 the Americas and Europe, although this is expected to reverse for the 2015 analysis.

Total costs and farm rankings

In 2014 feedlot and pasture based finishing systems tended to have lower costs than silage systems, although they are now only marginally lower when compared to 2013. Non-factor costs dominate in each finishing system (of which 30-70% is the cost of transferred/purchased livestock), although land, capital and labour contribute more significantly within pasture and silage systems per unit of output.

Figure 15 Total average long-run cost of production (US$/100kg liveweight sold)



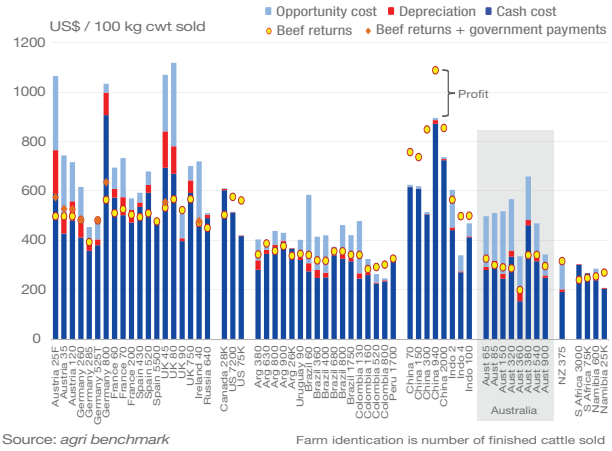
Uruguay

The Australian systems, all pasture based systems, had a comparably high total costs of finishing (in US$) in 2014, partly elevated by the higher A$ and higher feed costs in most systems, but total costs were marginally reduced from 2013 levels due to lower 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 2014 (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. However, for most systems, profitability has generally marginally improved from their 2013 performance.

Figure 16 Cattle finishing costs, returns and profitability in 2014 (US$/100 lwt)



Source: *agri benchmark*

Farm identication is number of finished cattle sold

Generally the South American systems cover the short and medium-run costs, with only a few covering the opportunity costs and generating long-run profits. The notable exceptions were in China and Indonesia. In China, although costs continue to increase rapidly, so have beef returns. In New Zealand the finishing system maintained a long-run breakeven position.

Of Australia's eight pasture-based farms analysed, six covered both short and medium term costs in 2014, which is an improvement on 2013 performance, however, no farms covered total costs (inclusive of opportunity costs). This is due to both comparably lower beef prices, and higher feeding costs for most systems in 2014, the carry-over and continuing effects of the drought, but counteracted by lower weaner values. Australian systems, although most maintain relatively low cash costs of production and low depreciation costs, they have high opportunity costs (mainly land and to a lessor extent family labour).

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

Global *agri benchmark* network results 2015

In comparison…Australian cattle finishing systems have:

- *Moderate to high weight gains in southern beef systems, but low weight gains in northern beef systems, partly due to drought, but also due to their feedbase (with performance comparable to pasture-based South American and African systems).*
- *Received below average prices when compared to other countries, again reflecting the continuing impact of drought and an over-supply of cattle. Although most countries experienced a slight reduction in beef prices between 2012-2013 to 2014 (excluding the US, Canada and China, where prices increased significantly).*
- *Low to moderate costs of production with returns that do not, generally, cover the long-term costs of operation - in keeping with most beef finishing systems in the world.*
- *Returns that improved marginally in 2014 from 2013 levels - which occurred in most beef finishing systems around the world.*
- *High labour and land opportunity costs, which tend not to be covered through beef returns.*

Argentina

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 country's) 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 and their competition against sheep meat in many farming systems (especially wool and crops in Australia), as well as increasing environmental constraints (most noticeably in China and Africa), as well as a range of other constraints like ageing farmers and predators.

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.

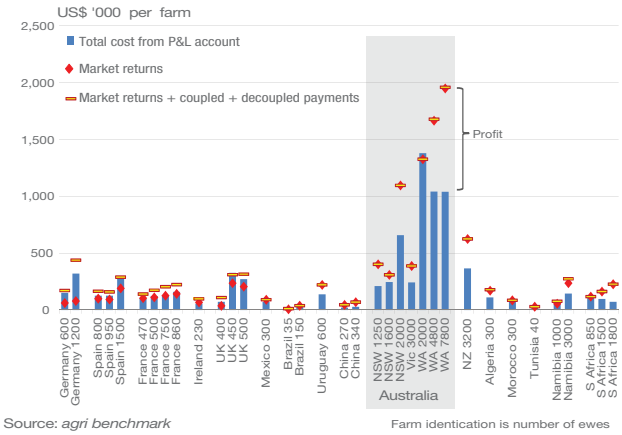
Sheepmeat prices settled back during the 2012-2014 period, as simultaneous droughts in Australia and New Zealand saw supply fall on world markets. More recently prices have fallen back to the lows of 2013, but are expected to rise again as the recent fall in Oceania flocks is reflected in lambs available and sheepmeat production, and as China continues to grow as a major importer, following years of stagnant sheepmeat supply and record internal prices. Chinese imports are not only growing but they are also evolving; as carcase imports into China are increasing. There is also high demand for low value product with hot pot restaurant growth in China creating high demand for lamb flaps.

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 34 typical farming systems (across 16 countries) managed to make a profit at the whole farm level, although this is partly dependent on other enterprises or non-farm returns (coupled and non-coupled government payments).

Figure 17 Whole sheep farm profitability ('000 US$)



Source: *agri benchmark*

Farm identication is number of ewes

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 scale and crop incomes. Two of the WA farms, AU-4800 and AU7800, were the most profitable globally, followed by AU-2000 (central NSW) and the NZ farm.

Australian sheep farms generally maintain higher levels of profitability due to the diversification of the typical mixed farming systems and their scale. In 2014, cropping returns in particular, especially in the WA systems, were generally above average due to both favourable prices and yields, except for AU-2000WA, which was the only Australian to produce a loss in 2014.

On average, European farms achieved a net profit margin of -57% without government payments in 2014, but with achieved an average net profit margin of 23%, whereas Australian farms averaged 32%. Globally this represents a marginal increase in profitability when compared to 2013.

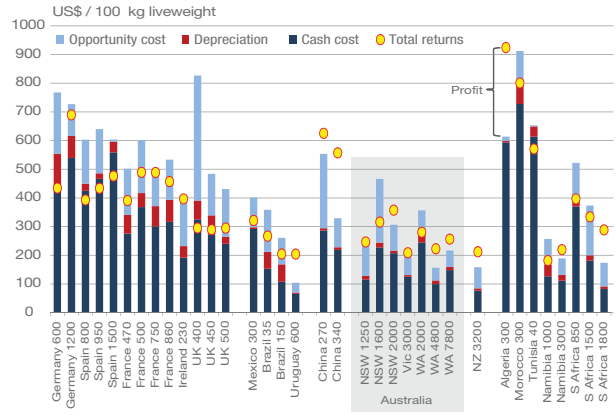
Spain

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

When the 2014 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 generally positive (better than for cattle) and higher than that achieved in 2013.

Many countries, even with significant government payments (excludes de-coupled payments), are not profitable in the longer term. The exception to this is Uruguay, New Zealand, China and some systems in Australia and Africa. The profitability of sheep flocks in many other parts of the world was marginally higher than that achieved in 2012 and 2013, although total returns still failed to or only just covered short-term cash costs, even though total revenues had risen.

Figure 18 Flock costs, returns and profitability (US$/100kg lwt)



Source: *agri benchmark*

Farm identification numbers represent number of ewes

In 2014, all of the typical sheep flocks analysed in Australia covered short and medium term costs (includes depreciation), with four of them (NSW-2000, NSW-3000, WA-4800 and WA-7800) covering long-term costs (opportunity costs), with the remainder contributing to, but not fully covering opportunity costs. For the majority of Australian systems this has improved from 2011 to 2014.

HOW EFFICIENT ARE AUSTRALIAN SHEEPMEAT PRODUCERS?

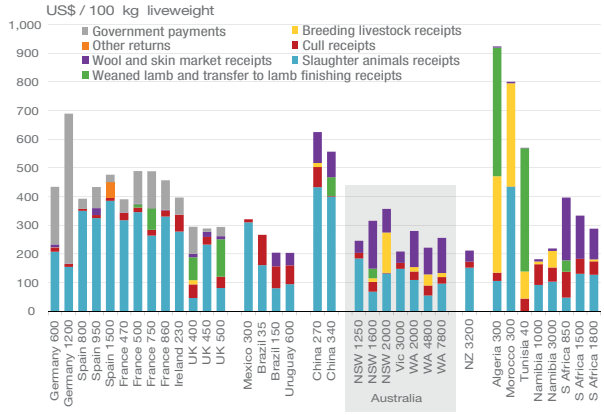
Total returns (US$/100kg lwt)

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, which has increased from 2013 levels, is only a significant contributor to income in Australia, NZ, China, Uruguay and South Africa. 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, UK and France (EU countries) receive significant amounts of government payments. These are either Whole Farm Payments (Germany, Ireland), Livestock Payments (FR-470, ES-1500) or a combination of the two.

Figure 19 Total sheep enterprise returns (US$/100kg lwt) - 2014



Source: *agri benchmark* Farm identification numbers represent number of ewes

In Australia, the total returns for the eastern typical farms had mixed results, with AU-2000 and AU-3000 increasing returns across most categories in comparison to 2013, whereas the western typical farms also had increased sheep enterprise returns, for both livestock and wool sales. For the Australian Merino based typical farms (AU-1600, AU-2000WA, AU-4800 and AU-7800) wool returns made up over 40% of total returns, which is only matched by two of the South African farms.

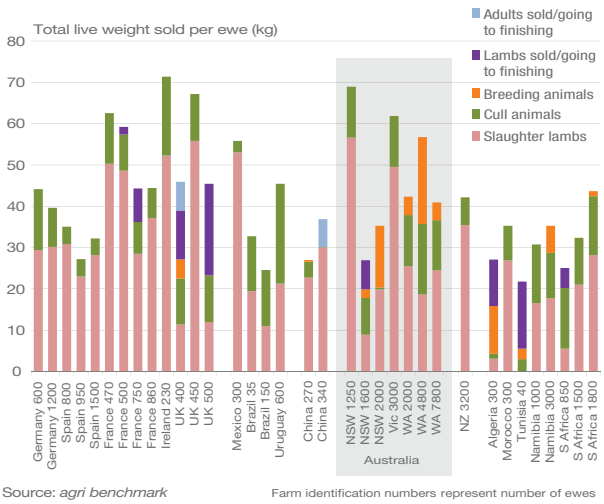
Total liveweight sold per ewe (kg lwt per ewe)[5]

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.

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.

Figure 20 Total liveweight sold per ewe (kg)



Source: *agri benchmark* Farm identification numbers represent number of ewes

[5] 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).

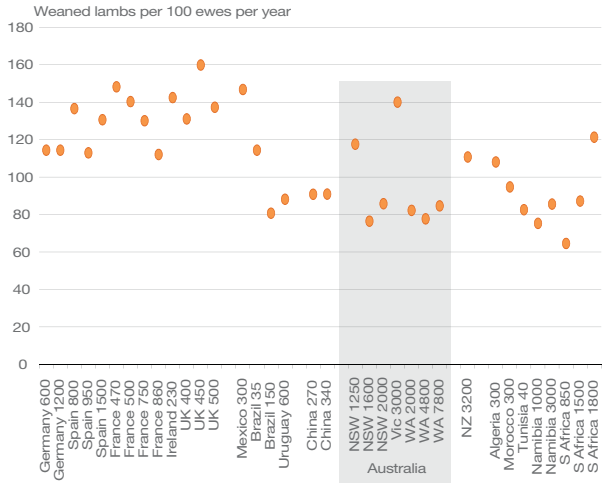
Losses of ewes (annual) and lambs (birth to weaning)

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 lambing's 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.

Figure 21 Weaned lambs per 100 ewes per year



Source: *agri benchmark*

Farm identification numbers represent number of ewes

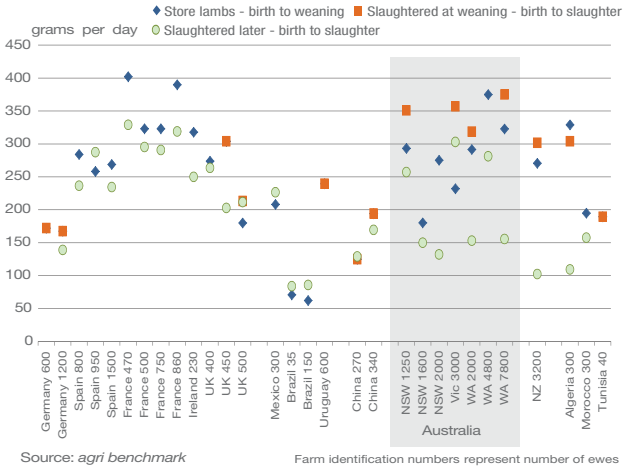
Lamb growth rates – birth to weaning and/or slaughter (grams lwt/day)

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). Feed quality (& quantity) and genotype also strongly influence growth rates, which is highlighted when comparing average lamb growth rates across different categories of sheep 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).

Figure 22 Lamb growth rates for store and slaughter lambs: from birth to weaning or slaughter (g lwt/day)

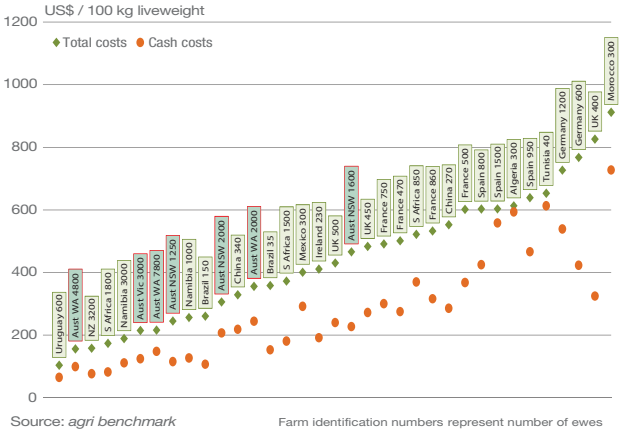


Source: *agri benchmark* Farm identification numbers represent number of ewes

Cash and total costs[6] 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 and AU-2000WA), whereas, of all the farms covered globally, only one Australian and South African farm, Uruguay, Namibia and NZ have total costs <US$2/kg lwt.

Figure 23 Cash and total long-run costs of sheepmeat production (US$/100kg)



Source: *agri benchmark* Farm identification numbers represent number of ewes

The changes in total costs of sheep meat production across the world from 2013 to 2014 were mixed. Costs fell in Australia (average across farms of an 12% reduction which is partly influenced by exchange rates); and reduced marginally in the America's and China (1%), whereas in Europe, NZ 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, and rising labour, land and feeding costs in NZ.

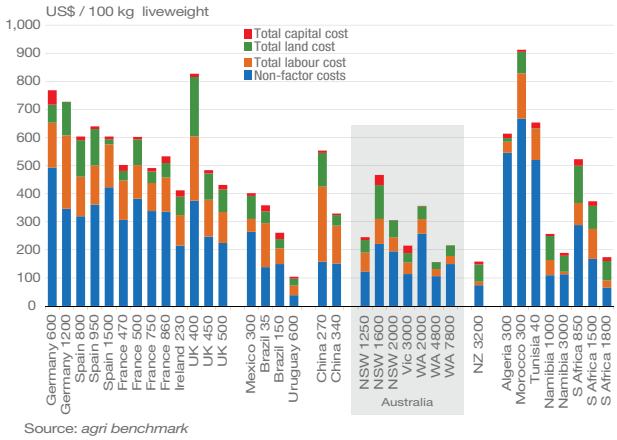
The significant outlier to the changes in costs of production is China, where the total costs of sheep production increased by 25% during 2012 and 2013, primarily due to increased costs of labour with hourly labour costs doubling, albeit from a very low level, but which has dramatically slowed and marginally declined from 2013 to 2014 (-1%).

[6] 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).

Total costs[7] 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[8], 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.

Figure 24 Total costs of sheep meat production (US$/100kg lwt)



Source: *agri benchmark*

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 which makes Australia one of the most labour efficient*
- *Comparably low to moderate sheep returns, which have improved from 2013 levels, and maintain low total costs of production which continue to decline year on year (the only country to do so), exchange rates will have an important role here into 2015*
- *Good and continuing sheep enterprise profitability across most Australian systems, which is in alignment with global trends*
- *Top whole farm profitability due to diversification and scale*

[7] 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.

[8] 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.