MEAT & LIVESTOCK AUSTRALIA MARKET INFORMATION

How are global and Australian beef producers performing?

Global *agri benchmark* network results 2022

agri benchmark

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October 2023

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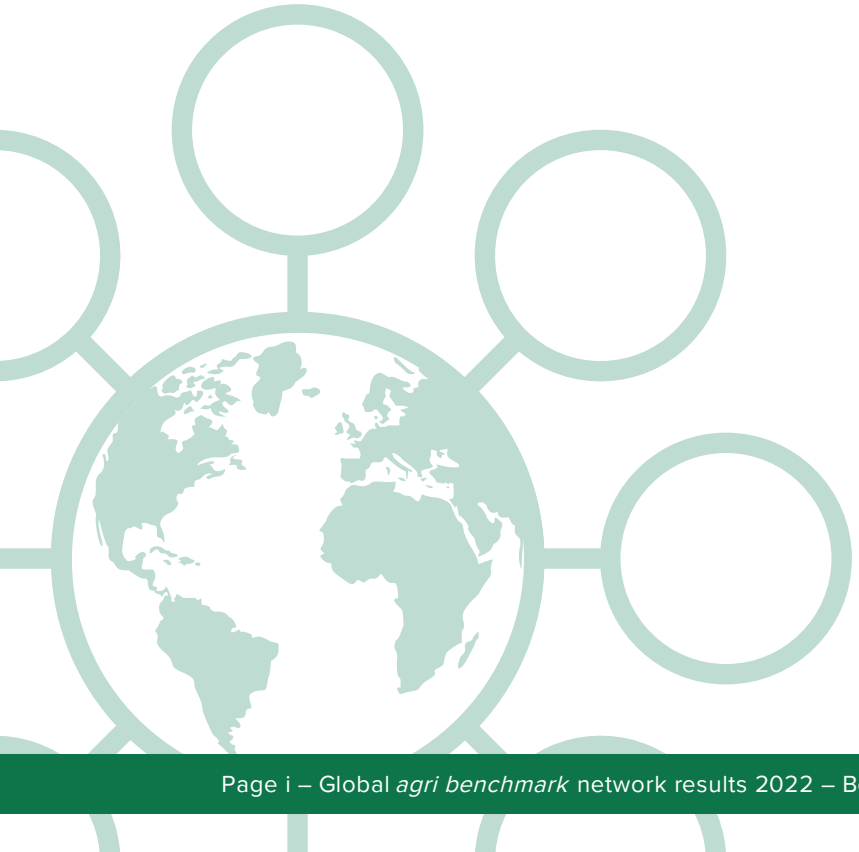

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Global and Australian farm performance for the beef sector, 2021

agri benchmark cow-calf and cattle finishing farm

Introduction

agri benchmark (*AB*) is a global non-profit, non-political network of agricultural economists, advisors, producers and specialists in key sectors of the agricultural value chain. It operates as an international network of research partners coordinated by the Thünen Institute – the German government rural research body. The cattle network has 33 member countries, covering 75% of world beef production. It has produced global productivity and performance results, and comparative analysis for the last 17 years.

This report summarises the latest production year data available from the network (2021, collected in 2022). This data provides insights into the financial performance and productivity of Australian beef farms in comparison to their global counterparts.

Summary of farm results for 2021

The beef cattle industry globally continues to grow and the typical farms that *agri benchmark* monitor around the globe mostly achieved good levels of profitability in 2021. Historically high prices and exceptional seasonal conditions underpinned the profitability for the Australian farms.

The recovery from drought in 2018 and 2019 continued. It takes years for livestock farms to recover from severe droughts and respond to improved seasonal conditions, as rebuilding numbers takes time (a biological lag of three to five years from mating to increased turnoff).

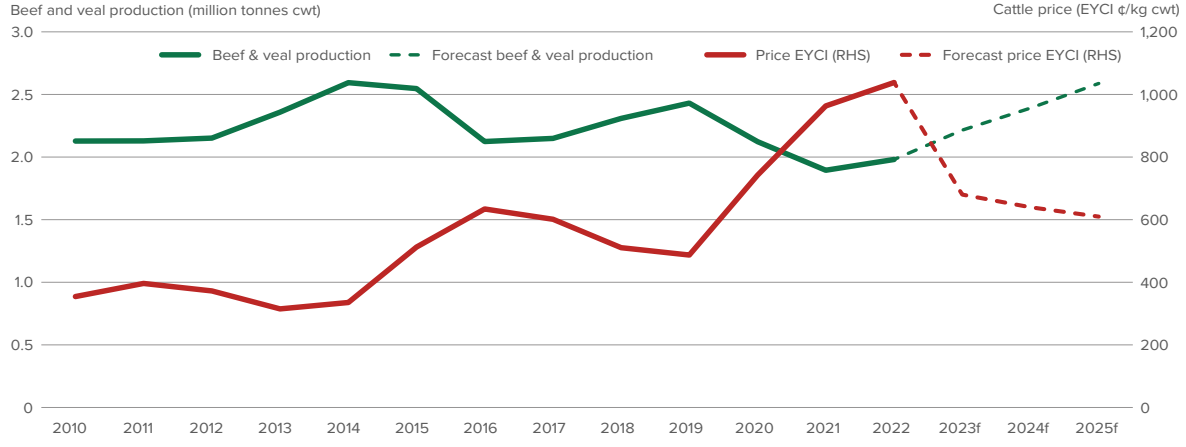
Producer moves to rebuild inventories resulted in a sharp fall in cattle output in 2020 and 2021, as breeding stock were retained. The slaughter of cows/heifers and calves both fell around 50% between 2019 and 2022, while slaughter of finished male cattle fell 10%.

This, together with intense restocker demand for livestock and high global meat demand and prices, caused a rapid post-drought lift in livestock prices in Australia. Australian cattle prices rose between 60% and 130% from 2018 to 2022, with the most rapid rises being for restocker steers and weaners, then cows – heavy finished steers showed the smallest (but still substantial) rise.

The full impact of the rapid cattle herd expansion is unfolding (see MLA Australian cattle inudstry projections in Figure 1), with strong increases in cattle slaughter and beef production and exports cattle prices have eased. Overall, cattle production productivity and profitability has reduced since this data was collected and analysed. To what extent will not be evident until the 2022 and 2023 data is analysed.

The positive Indian Ocean Dipole and declared El Nino conditions are likely to cause drier than average conditions for most of East and Southern Australia which will have impacts on supply and demand. Supply is likely to increase as producers reduce numbers to manage dry conditions putting pressure on prices and profitability.

Figure 1: Australian beef production and cattle price



Source: *ABS production, MLA production forecasts, NLRS MLA price (EYCI), Weeks Consulting price forecasts*

In 2021, farm profitability for the *agri benchmark* beef cattle farms in Australia was relatively good – it was one of the most profitable years for some of our typical farms.

Summary and conclusions

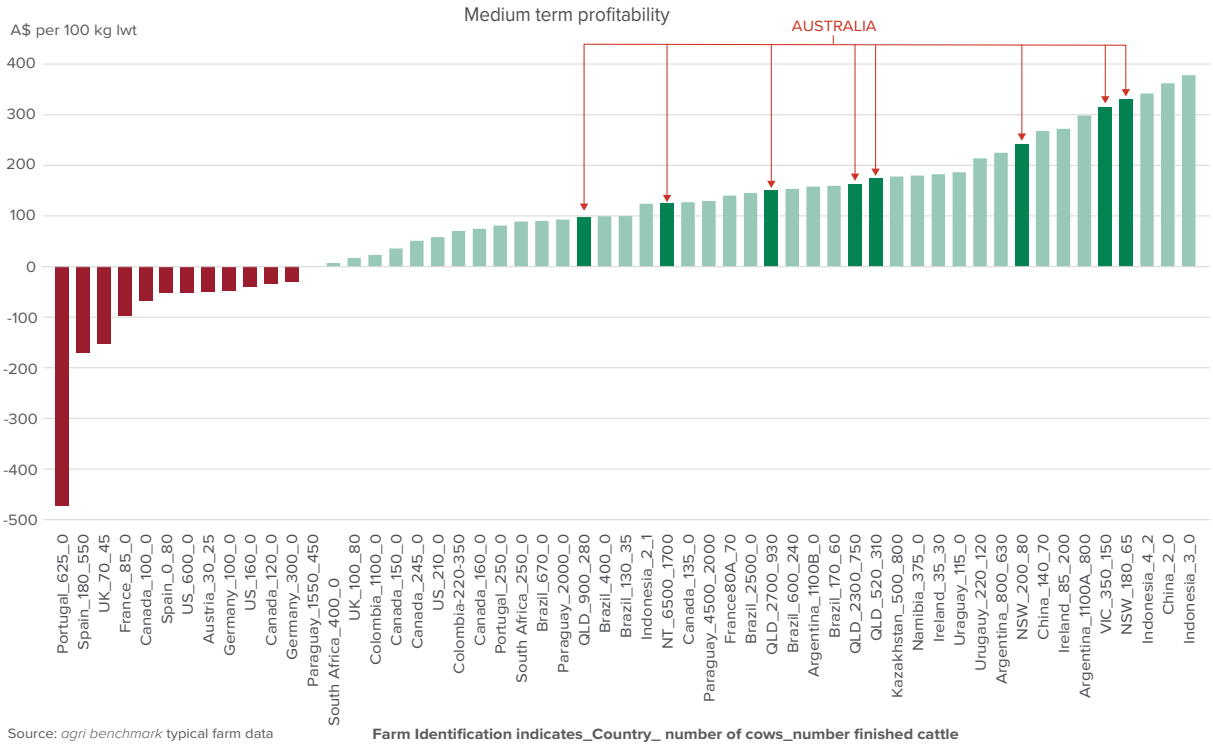
- Beef production shows strong profitaility worldwide, on the back of demand in Asia (especially China) and the high prices.
- Globally, cow-calf enterprises continue to maintain high levels of profitability (76% medium-term profitable[1]) (Figure 2), driven by high weaner prices.
- The increase in finished cattle prices meant that more cattle finishing enterprises achieved medium-term profitability in comparison to 2020, up from 48% to 61%.
- The continuing trend from 2019–2020 to 2022 of higher weaner prices compared to finished cattle prices suggests that globally the beef industry is still expanding.
- In Australia, the herd rebuilding after severe droughts in 2018 and 2019 continued well into 2021 and is only just starting to ease in 2023.
- Excellent seasonal conditions, abundant feed availability and high prices meant the eight Australian *agri benchmark* cow-calf farms achieved good levels of medium-term profitability in 2021.
- However, two of the finishing enterprise were unable to achieve medium-term profitability, mostly due to the high price of weaners and high costs.

agri benchmark cow-calf farm performance

Medium-term profitability for cow-calf farms

The majority (61%) cow-calf farms in 2021 achieved medium-term profitability in 2021, including all the Australian farms – with receipts more than covering their cash costs and depreciation.

Figure 2: Medium-term profitability for cow-calf farms.



Source: *agri benchmark* typical farm data

Farm Identification indicates_Country_ number of cows_number finished cattle

The main reason for the profitability within the cow-calf enterprises (Figure 2) is the continuing high prices for weaners in most regions, (Figure 3). North America had the lowest weaner prices (Figure 3) and both North American cow-calf farms did not achieve medium-term profitability, (Figure 2).

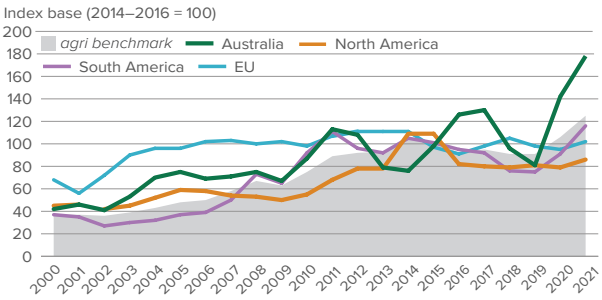
[1] Total returns minus cash costs + depreciation

Regional weaner price index

The weaner price index using *agri benchmark* weaner prices, shows the significant increase in the Australian weaner prices as drought dissipates and herds are rebuilt with improved seasonal conditions, (Figure 3).

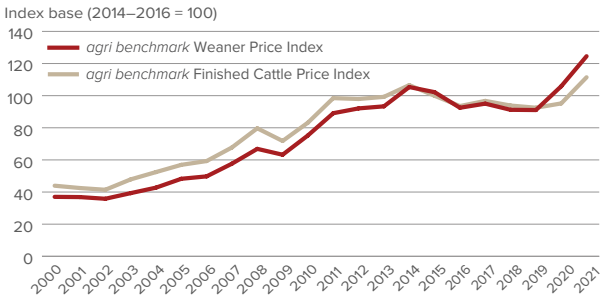
Figure 4 shows the comparison between the *AB* weaner price index and the finished price index. Since 2000 the *AB* weaner price has followed the same trend as the finished cattle price, although generally lower until 2014 when they merge and in 2019 the weaner price emerges higher than the finished cattle price.

Figure 3: *agri benchmark* weaner cattle producer price index



Source: *agri benchmark*

Figure 4: *agri benchmark* weaner price and finished producer cattle price index comparison



Source: *agri benchmark*

This high price for weaners supports the profitability for the cow-calf enterprise, but generates a higher cost of production for finished cattle enterprises, impacting the profitability of both enterprises.

In Australia, most farms have both a cow-calf and beef finishing enterprise, breeding weaners to transfer into the finishing system, but with variations where farms sell some weaners to finishers or buy more weaners to finish. Although there is a cost to the finishing system, there is a benefit to the cow-calf enterprise. However, large feedlots dependent on purchasing animals to finish, rely on economies of scale and when weaner prices are higher than finished cattle prices profit margins are squeezed.

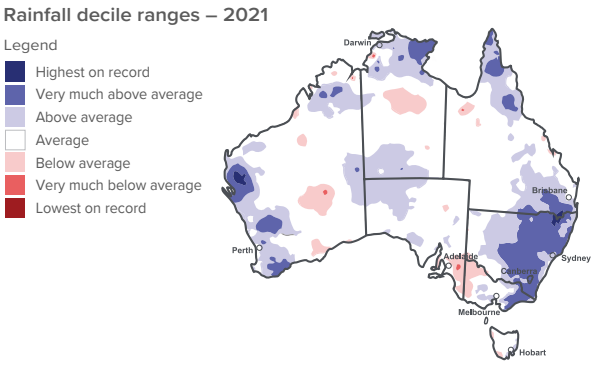
Seasonal conditions in Australia for 2021

Seasonal conditions have significant implications for profitability levels, and in the previous 2020 *agri benchmark* report we discussed the impact of the 2018 and 2019 droughts on cost of production and management decisions.

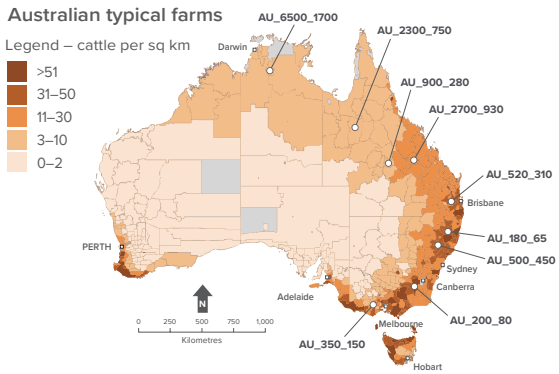
Seasonal conditions were favourable in 2021, with rainfall average, or above-average, for most of the country, (Figure 5). The Australian *agri benchmark* cow-calf and finishing farms all reported improved seasonal conditions, although for QLD_520_310 it was still below-average. Figure 6 shows the location of the *agri benchmark* farms in relation to seasonal conditions in Figure 5.

Generally, feed was abundant, with not enough stock for full pasture utilisation on many farms. AU_180_65 used a tactical management decision to purchase additional stock for a short period to increase income and utilise the additional pasture resource. Table 1 outlines this strategy and provides a summary of seasonal conditions and management strategies for each farm.

Figure 5: Australian rainfall deciles for 2021 (left) and location of *agri benchmark* typical farms and density of cattle (right).



Source: Bureau of Meteorology



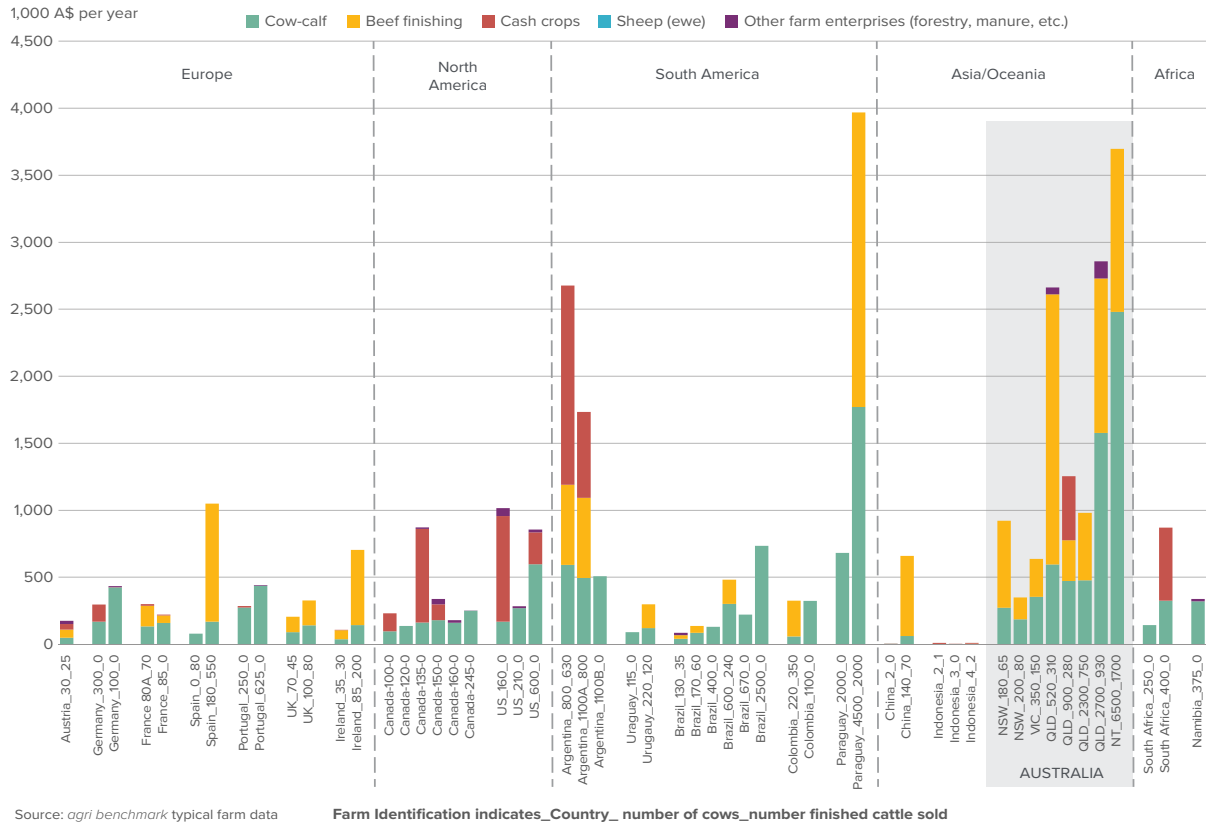
Farm Identification indicates_ number of cows_number finished cattle sold

Source: ABS and *agri benchmark*

Cow-calf farming systems

The composition of whole farm returns in Figure 6 shows how reliant cow-calf farms are on income from the sale of cattle. Globally, the cow-calf and finishing enterprises are two separate entities. Australia is unusual where properties have both a cow-calf enterprise and a finishing enterprise. A few have cash crops, but most are specialised cattle producers. Figure 6 shows the composition of the revenue (whole farm returns) by enterprise, including government payments, giving an idea of the types of enterprise each typical farm runs.

Figure 6: Composition of whole farm returns, including government payments, A$ per 100kg lwt



Source: *agri benchmark* typical farm data

Farm Identification indicates_Country_ number of cows_number finished cattle sold

United States

Table 1: *agri benchmark* cow-calf farm locations, breeding cow numbers and seasonal conditions

agri benchmark farm ID	Location and size	Number of breeding cows 2021 and breed	Seasonal conditions and management responses
AU_200_80	New South Wales Tablelands 370 hectares	180 Angus	Post-drought recovery and very good seasonal conditions across 2020 and 2021. High level of feed availability and low-cost production.
AU_180_65	New South Wales Northern Tablelands 800 hectares	180 British	Forage crops and pasture establishment occurring across 80ha, at a cost of $550/ha; used for finishing lambs and steers. Post drought recovery and very good seasonal conditions across 2020 and 2021. Purchased 160 Angus heifers at 270kg in February ($1,700/head) and then grew them to 330kg by April. Joined to bulls (bulls used for cows as assume low birth weight and good calving ease) for 6 weeks and then pregnancy scanned six weeks later and placed for sale as pregnancy tested in calf heifers in August ($2,700/head).
AU_350_150	Victoria Western District 505 hectares	350 Angus	2021 saw a very wet start to the year in January which resulted in good production from summer fodder crops, followed by an average autumn and a relatively wet winter. The region saw a relatively good spring, though not as good as the previous year, with an earlier cut-out. Good pasture production, combined with record high beef prices, resulted in an increase in beef enterprise profits across the region during 2021.
AU_520_310	Queensland Darling Downs 3,670 hectares	654 Drought Master	Conditions started to improve but the effects of previous drought in 2020 were still impacting the property into July 2021, with only 442mm rainfall for the 12-month period prior to this – well below the annual average rainfall of 650mm. Feed costs were high and impacted on cost of production.
AU_900_280	Queensland Burdekin 10,660 hectares	647 *Bos Indicus*	Good seasonal conditions receiving nearly average rainfall of 600mm when 688mm rainfall is average.
AU_2300_750	Queensland Gulf 72,770 hectares	3,458 Red Brahman	No information available.
AU_2700_930	Queensland Fitzroy 22,270 hectares	2,398 Brahman	Good seasonal conditions receiving a little above average rainfall at 563mm when average expected rainfall is 555mm.
AU_6500_1700	Northern Territory 147,000 hectares	6,485 Brahman	The wet season leading into 2021 was one of the better seasons in the last five years. The year was unusual because there was no downgrade of price from during the wet season of 20–21 to the dry season of 2021. The price remained steady through the dry season, softened at the end of the dry and then, after other parts of Australia started to experience good falls of rain, the price climbed to levels never seen before – up to $5.50/kg liveweight for boat steers going to export and reported prices of up to $8/kg for weaners headed south which led to increased numbers of weaners being transacted (which will be reflected in the 2022 summary). This price increase is not reflected in the 2021 prices used in this analysis as the bulk of the cattle leaving the NT were sold earlier in the year. Supply of husbandry materials began to tighten, but the large jump in input costs that began to occur late in 2021 and into 2022 had not occurred earlier in 2021 and, hence, has not impacted on the 2021 farm results. A slight increase in supplement costs has been included. Due to having a reasonable growing season and the low cattle numbers in the NT (predicted to have decreased by almost 50% since 2019) and lower volumes of sale cattle moving, hay was in abundance, therefore reducing prices. Labour costs and units have increased.

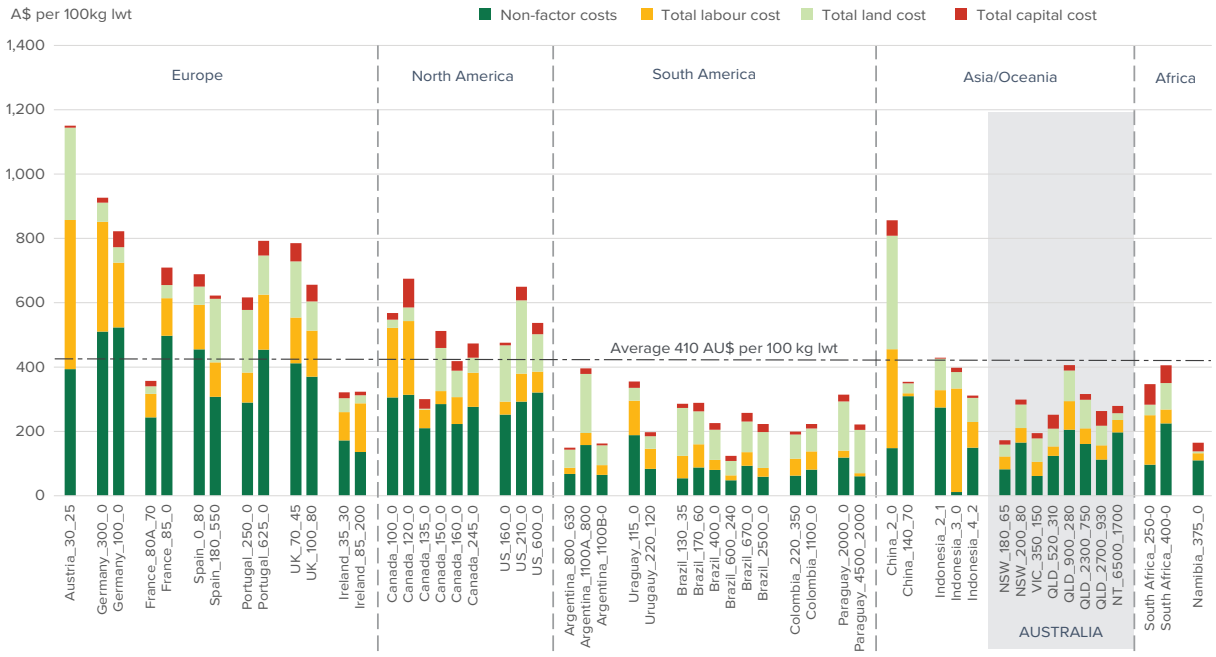
Source: *agri benchmark* typical farm data

Cow-calf cost of production

The average cost of production for the *agri benchmark* cow-calf farms was A$410 per 100kg lwt. The South American *agri benchmark* farms have a lower-than-average cost of production, well below most other countries, (Figure 7). Australia's *agri benchmark* farms are also relatively low-cost producers and below the average, especially in comparison to European countries where systems often incorporate winter barn housing and high costs for feeding.

Costs have remained relatively constant for Australia farms in recent years. However, this started to change at the end of 2021, with costs increasing throughout 2022. Data collected for 2022 which will be published later this year suggests large increases in costs for the Australian farms.

Figure 7: Total cost of cow-calf enterprise AU$ per 100kg lwt.



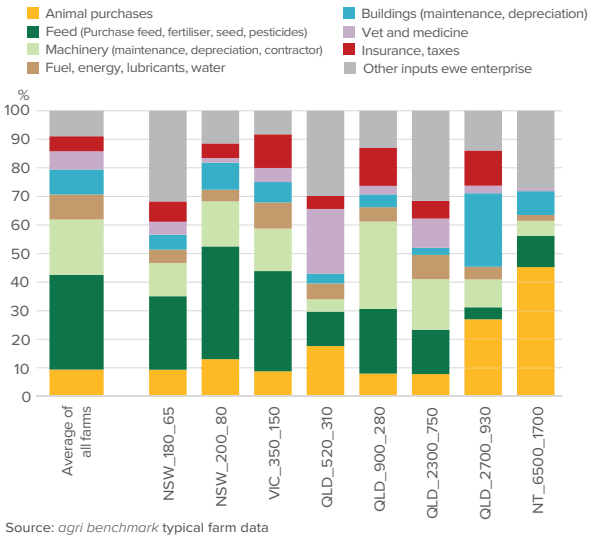
Source: *agri benchmark* typical farm data

Farm Identification indicates_Country_ number of cows_number finished cattle sold

The non-factor costs, also known as variable costs, are the main costs for the cow-calf farms in most countries. There are a few exceptions where the labour and land costs are higher, for example one of the farms in China (China_2_0) and the Austrian farm (Austria_30_25).

When non-factor costs are examined in more depth, (Figure 8), the largest cost for the cow-calf enterprise is feed costs. This varies with the seasonal conditions and the cost of grain or concentrates.

Figure 8: Non-factor (variable costs) for Australian cow-calf farms compared to the average for all farms (%)



Source: *agri benchmark* typical farm data

Germany

Table 2: Total variable costs for cow-calf enterprise (A$ per 100kg lwt)

	Animal purchases	Feed (purchased feed, fertiliser, seed, pesticides)	Machinery (maintenance, depreciation, contractor)	Fuel, energy, lubricants, water	Buildings (maintenance, depreciation)	Vet and medicine	Insurance, taxes	Other inputs cow calf enterprise	TOTAL of variable costs for cow-calf enterprise
	A$ per 100kg lwt								
Average for all farms	**20**	**69**	**40**	**18**	**18**	**13**	**11**	**19**	**207**
NSW_180_65	8	21	10	4	4	4	6	82	**82**
NSW_200_80	22	65	26	7	16	3	9	165	**165**
VIC_350_150	5	22	9	6	4	3	7	62	**62**
QLD_520_310	22	15	5	7	4	28	6	124	**124**
QLD_900_280	16	46	63	10	9	6	27	205	**205**
QLD_2300_750	13	25	29	14	4	16	10	161	**161**
QLD_2700_930	30	5	11	5	29	3	14	112	**112**
NT_6500_1700	89	21	10	4	16	2	0	197	**197**

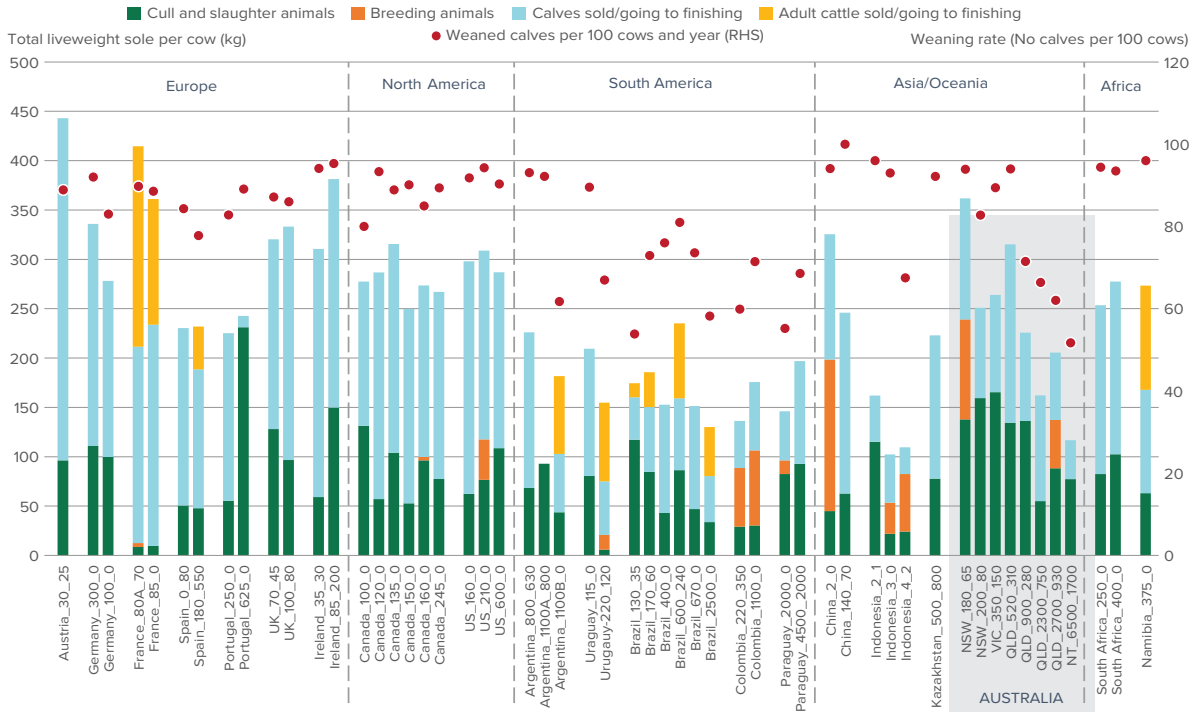
Source: *agri benchmark* typical farm data

Measuring productivity of the cow-calf farms using liveweight produced

The amount of liveweight produced per cow is a key measure for productivity. It is an indicator of management, response to the environment and genetics.

The Australian farms in Queensland and the Northern Territory generally have lower calf weaning rates, like the farms in South America, where *Bos indicus* cattle are used to suit the environmental conditions – e.g., the Nelore breed used in Brazil. European countries use continental breeds, like the Charolais, Simmental and Angus. The farms in South Australia, southern NSW and Victoria also use breeds like Angus. The lower productivity in the Queensland and Northern Territory properties is expected due to the environmental conditions and type of grazing land with low stocking rates. Table 3 provides details.

Figure 9: Total liveweight produced per cow (kg lwt)



Source: *agri benchmark* typical farm data **Farm Identification indicates_Country_ number of cows_number finished cattle sold**

Table 3 shows the breed of cattle on Australian *AB* farms use and provides a description of the natural region they are located.

Table 3: Breeds used in Australian *agri benchmark* typical farms

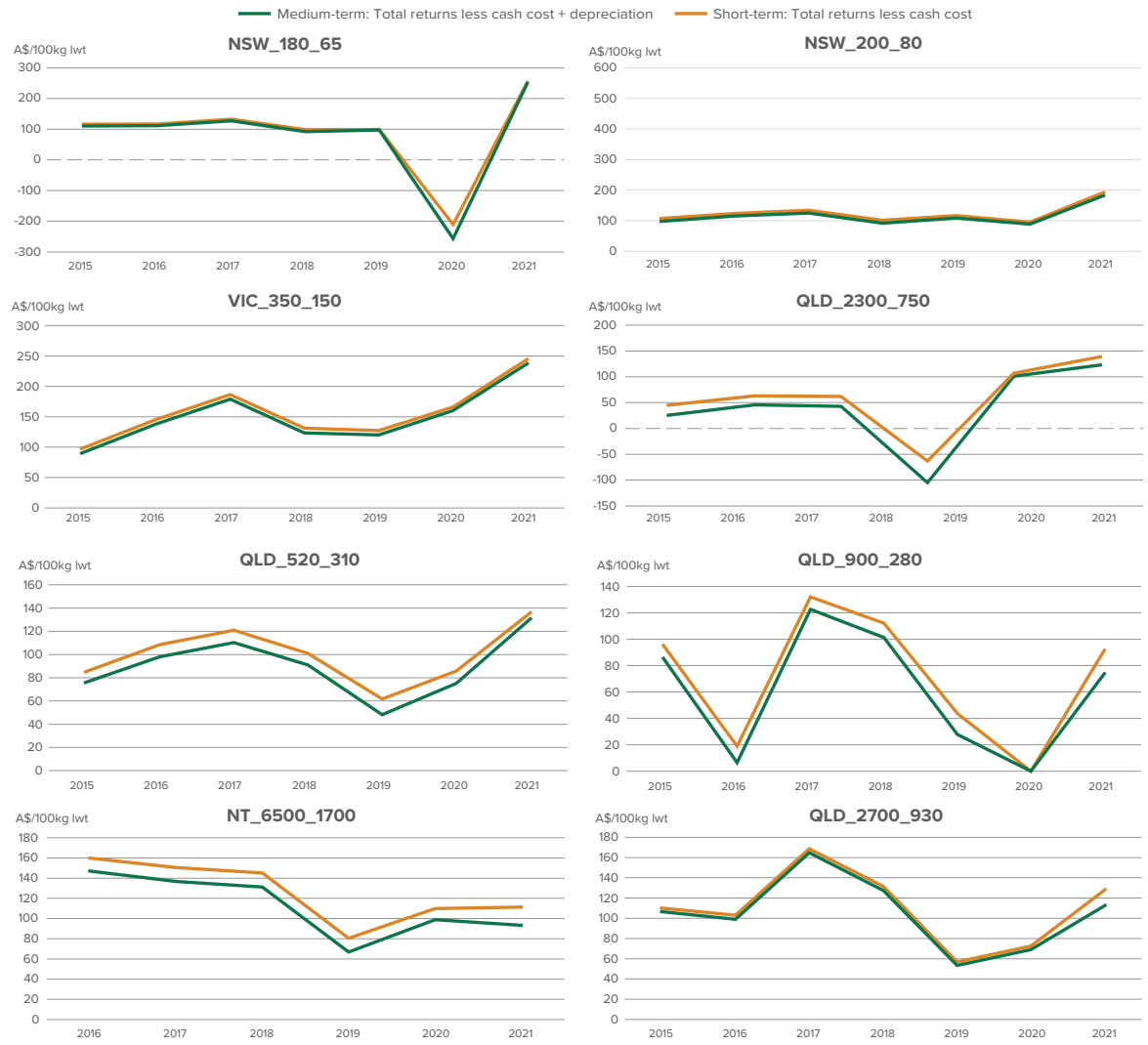
Farm identification with number of cows and number of finished cattle	Breed	Natural region
NSW_180_65	Angus	Tablelands
NSW_200_80	British	Tablelands
VIC_350_150	Angus	Tablelands
QLD_520_310	Brahman	Rangeland
QLD_900_280	Simmental x Droughtmaster	Darling Downs
QLD_2300_750	Bos indicus	Brigalow
QLD_2700_930	Red Brahman	Rangelands/open woodlands
NT_6500_1700	Brahman	Rangelands/open woodlands

Source: *agri benchmark* typical farm data

Trends in profitability for Australian cow-calf farms 2016 – 2021

There are several years of data for some of the Australian *agri benchmark* farms. Australia started contributing data to the *agri benchmark* project in 2009. Figure 10 shows the short- and medium-term profitability for the eight cow-calf farms since 2016. The variability in years is due to the seasonal variability and prices, although, remarkably most of the farms have achieved a medium-term profitability in most years, which means they can generate enough operating surplus to pay for their cash costs and depreciation, so invest in machinery, building and equipment.

Figure 10: Trends in short-term and medium-term cow-calf enterprise profitability 2015 – 2021 (US$/100kg lwt)



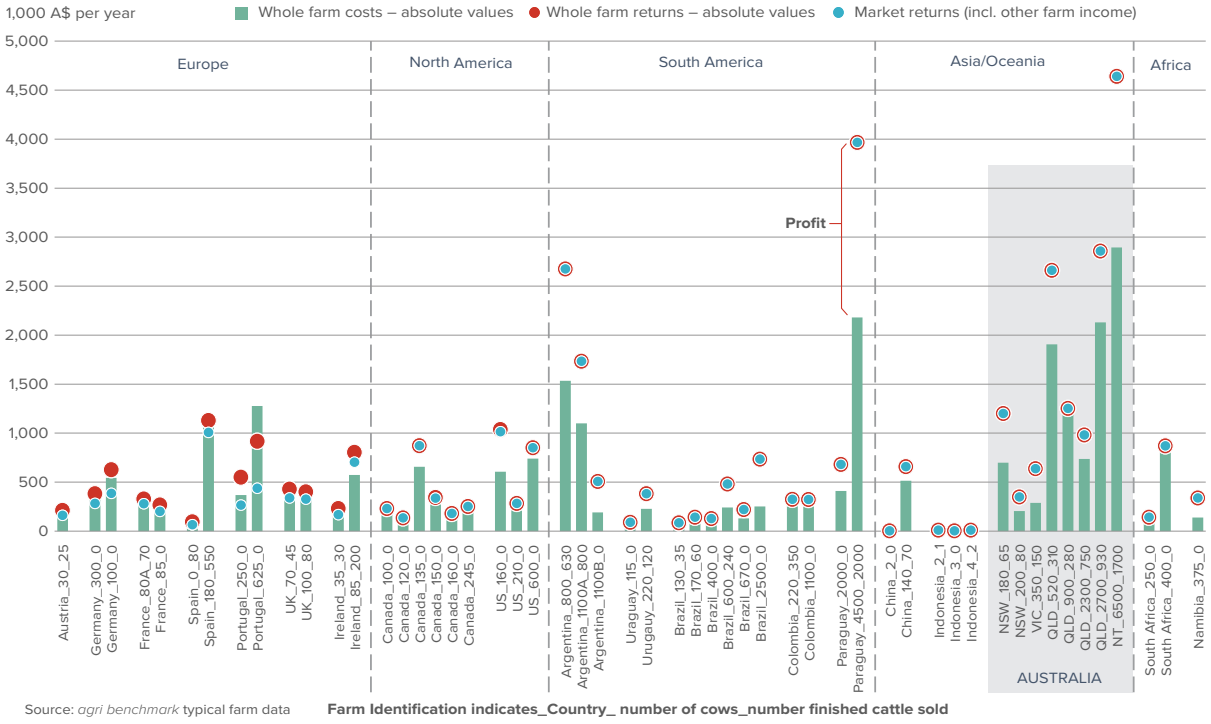
Source: *agri benchmark*

Cow-calf whole-farm profitability

The typical cow-calf farms in the *agri benchmark* database generally achieved medium-term profitability in 2021, (Figure 1).

A few European countries were able to achieve profitability without government support – where the light blue dot is above the red dot on the graph in Figure 11. The weaner prices increased again in most countries and whole farm profit for the cow-calf farms was achieved by most *agri benchmark* typical farms, (Figure 11).

Figure 11: Whole farm profit for cow-calf farms 1,000 A$ per year



Source: *agri benchmark* typical farm data

Farm Identification indicates_Country_ number of cows_number finished cattle sold

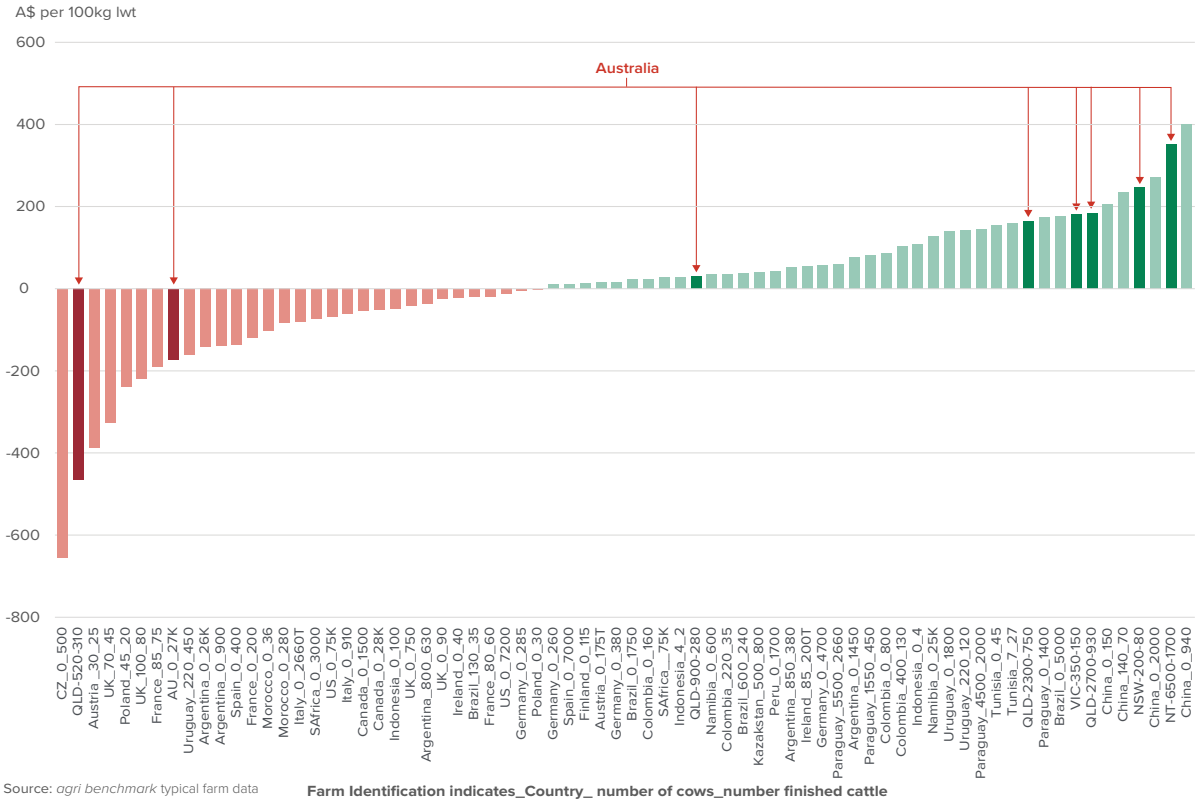
Australia

agri benchmark beef finishing enterprise performance

Results for 2021

Global finished cattle prices lifted in 2021, which increased the number of beef finishing farms achieving medium-term profitability, Figure 12. Fifty-eight of the 95 farms in the *agri benchmark* data set, or 61%, achieved medium-term profitability – a 9% improvement on last year when 52% were profitable in the medium-term, the lowest since 2017 when 100% reached medium-term profitability, 64% in 2018 and 60% in 2019.

Figure 12: Medium-term profitability for beef finishing enterprises



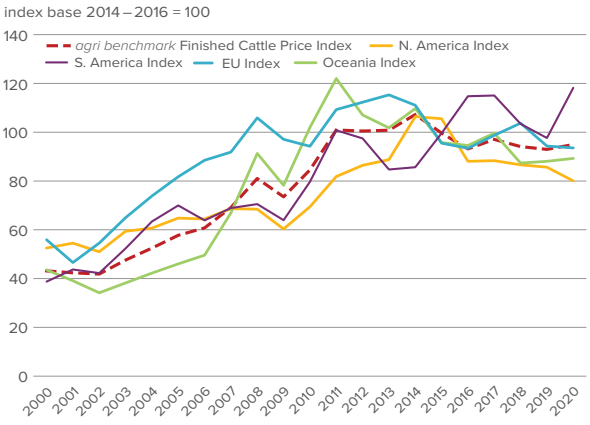
Source: *agri benchmark* typical farm data

Farm Identification indicates_Country_ number of cows_number finished cattle

The *agri benchmark* finished cattle producer price index shows how prices in Oceania increased and are higher than the other regions. This trend started in 2019, a result of high demand during a period of severe drought, herd rebuilding after the drought and continuing high levels of demand from trading countries like China.

All except two Australian beef finishing farms reached medium-term profitability in 2021. This contrasts with 2020, when the profit results for the Australian beef finishing farms were mixed – with losses in the finishing part of their enterprise for four farms. This was mainly due to the high weaner prices, which supported a high level of profitability in the cow-calf enterprise in both 2020 and 2021. The increase in prices for finished cattle in 2021 has supported profits for the beef finishing enterprise in that year (Figure 13).

Figure 13: *agri benchmark* finished cattle price index, 2000 – 2021

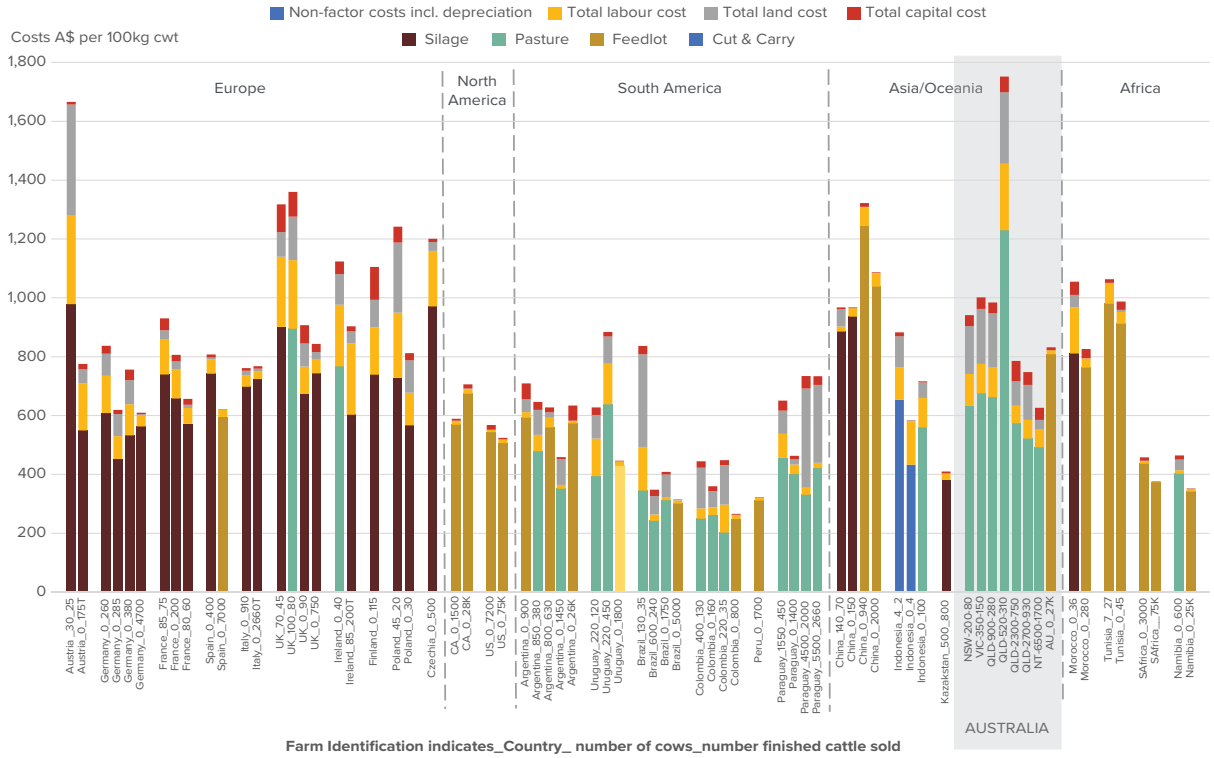


Source: *agri benchmark*

Cost of production for different systems and countries

There are four main systems used to finish cattle – grain finishing systems (generally in a feedlot or confined area); silage systems (dominant in Europe); winter barn housing, and pasture systems (used in all countries). The Australian and South American *agri benchmark* farms have both pasture and feedlot finishing farms, (Figure 14). Cut and Carry is used in Indonesia.

Figure 14: Cost of production A$ per 100kg carcase weight



Farm Identification indicates_Country_ number of cows_number finished cattle sold

Non-factor costs including depreciation are the largest proportion of costs for the finishing enterprise, (Figure 14).

Table 4 provides a breakdown of this category for the Australian farms and compares them to the average for all farms, also illustrated in Figure 15.

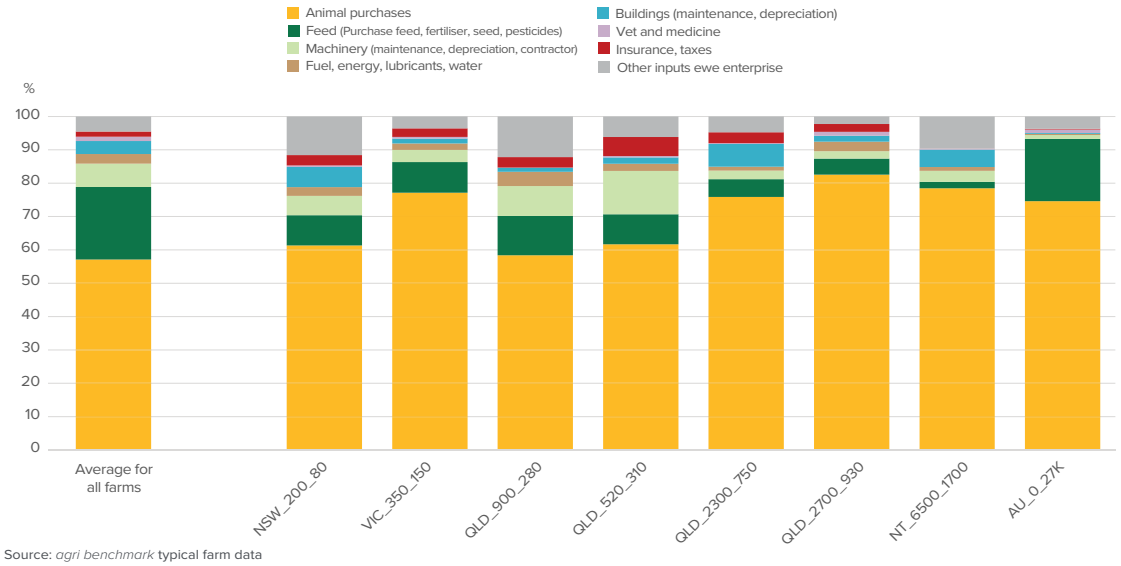
Table 4: Cost of production A$ per 100kg carcase weight

	Animal purchases	Feed (purchased feed, fertiliser, seed, pesticides)	Machinery (maintenance, depreciation, contractor)	Fuel, energy, lubricants, water	Buildings (maintenance, depreciation)	Vet and medicine	Insurance, taxes	Other inputs beef enterprise	Total of variable costs
	A$ per 100kg lwt								
Average for all farms	**345**	**131**	**42**	**17**	**24**	**8**	**9**	**27**	**604**
NSW_200_80	388	57	37	17	38	3	20	73	**633**
VIC_350_150	521	62	25	13	10	3	17	24	**675**
QLD_900_280	387	78	59	28	8	0	21	81	**662**
QLD_520_310	758	110	160	26	23	5	70	76	**1,230**
QLD_2300_750	435	30	15	7	39	2	19	27	**574**
QLD_2700_930	431	25	12	15	9	6	12	12	**522**
NT_6500_1700	386	9	16	6	26	1	0	47	**492**
AU_0_27K	603	151	9	3	2	8	2	30	**808**

Source: *agri benchmark* typical farm data

The largest cost for all farms is the purchase of weaners to enter the finishing system. The Australian farm QLD_520_310 had the highest cost of production; feed costs were high due to a dry start to 2021 and labour costs have increased significantly in the last two years.

Figure 15: Variable costs for Australian beef finishing farms compared to the average for all farms



Source: *agri benchmark* typical farm data

The Australian farms' finishing systems are mostly pasture based, except AU_0_27K which is a specialised feedlot aiming to finish animals over 600kg lwt in around 100 days, (Table 5).

Table 5: Average number of days to finish, average weight at the start (kg lwt), finished weight (kg lwt), average daily weight gain (g/hd/day) for each type of finishing system and average weight gained (kg lwt) (range in brackets)

Production system	Average number of days to finish (days)	Average weight at the start (kg lwt)	Average finished weight (kg lwt)	Average daily weight gain (g/head per day)	Average weight gained (kg lwt)
Cut and carry	313 (180 – 398)	130 (80 – 220)	316 (280 – 350)	573 (333 – 722)	186 (60 – 260)
Grain-finished	184 (87 – 366)	264 (80 – 408)	514 (343 – 703)	1,433 (758 – 2,314)[2]	250 (110 – 468)
Pasture system	536 (160 – 851)	206 (130 – 450)	458 (267 – 666)	536 (180 – 915)	252 (60 – 390)
Silage system	360 (120 – 617)	207 (45 – 550)	627 (315 – 735)	1,203 (614 – 1,540)	292 (150 – 647)
Australian Farms	**Number of days to finish (days)**	**Weight at the start (kg lwt)**	**Finished weight (kg lwt)**	**Daily weight gain (g/head per day)**	**Weight gained (kg lwt)**
NSW_200_80	357	211	430	632	219
VIC_350_150	475	220	406	398	186
QLD_900_280	364	230	383	420	153
QLD_520_310	255	250	310	235	60
QLD_2300_750	555	220	362	255	142
QLD_2700_930	330	251	518	811	268
NT_6500_1700	635	174	300	233	126
AU_0_27K	105	374	617	2,314	243

Source: *agri benchmark* typical farm data

[2] AU_0_27K daily weight gain is 2,314g/hd/day

Trends in profitability

The variability in profitability between the Australian beef finishing farms and between years is illustrated in Figure 16. These farms have complete data sets from 2016 – 2021. The trend in data shows how the farms, VIC_350_150, NSW_200_80 and QLD_2300_750 were all affected by drought in 2018 and 2019.

For QLD_520_310, dry seasonal conditions in the early part of 2021 and rising costs also impacted finishing profitability in 2020 and 2021 – although they had high levels of profitability in their cow-calf enterprise and cash crops. The feedlot AU_0_27K, was profitable throughout the drought years but has been negatively impacted by the high prices for weaners in the last two years.

Figure 16: Short- and long-term profitability for beef finishing farms 2016 – 2021 (A$/100kg cwt)

Source: *agri benchmark*

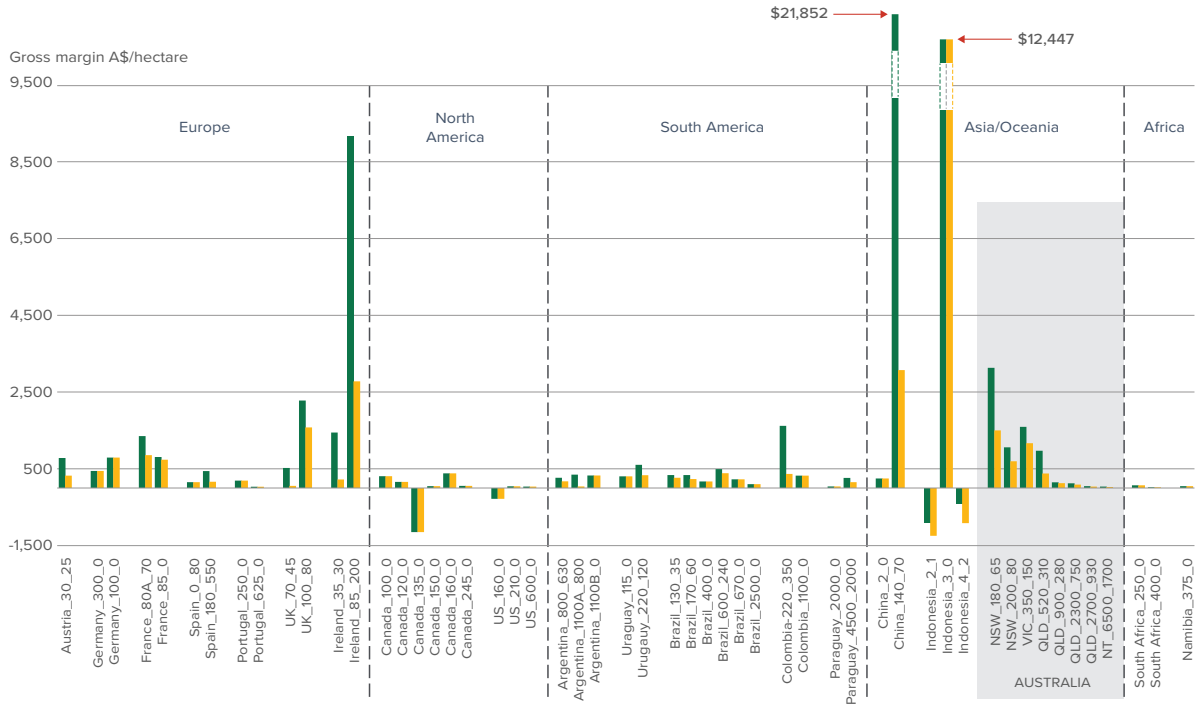
Argentina

Beef finishing performance summary

Globally, the beef finishing sector performed well in 2021 with higher-than-average prices for finished cattle, especially in the Asia/Oceania region. Australian finishing farms performed well and nearly all achieved medium-term profitability, despite costs starting to increase. The lower prices in North America impacted their profitability.

The gross margins per hectare for the cow-calf farms, some with finishing enterprises, (Figure 17) show the large difference in profitability of land use between farms in different countries and within countries like Australia. The gross margin per hectare[3] is a measure used by farmers as a key performance indicator to make enterprise composition decisions.

Figure 17: Gross margin per hectare for cow-calf and finishing enterprise using cow-calf farms



Source: *agri benchmark* typical farm data

Farm Identification indicates_Country_ number of cows_number finished cattle sold

2022 was a year of excellent seasonal conditions, resulting in herd expansion, low output and record cattle prices. This is expected to be reflected in another year of high returns on *agri benchmark's* typical Australian cattle farms (with the high cattle price more than offsetting the fall in cattle turnoff), stable or lower costs (with fewer purchased cattle and low feed costs offsetting rises in the cost of other inputs such as energy, labour and land) and high farm productivity and profitability.

Ireland

[3] Cow-calf herd market receipts minus total variable costs minus feed costs divided by land use (hectares) equals gross margin per hectare.

The rapid rise in land costs

Since data collection started in 2009, the *agri benchmark* project has witnessed a significant increase in the value of land in Australia. The price of agricultural land (per hectare) again rose rapidly in 2022, by 29% – after a similar 27% growth in 2021[4].

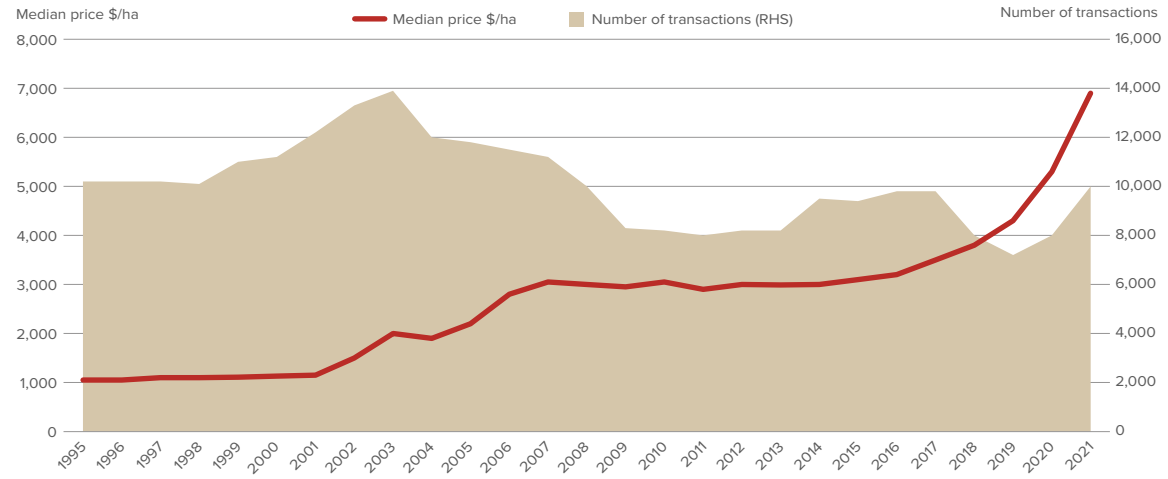
For example, the land value for the farm VIC_350_150 has increased to $15,000 per hectare in 2022.

This is the nineth consecutive year of growth in Australian agricultural land prices, bringing the total increase over the period to around 170% (Rural Bank). Rural land has performed much better than other asset classes in Australia – in the 20 years to 2021 the compound annual growth in rural land values/hectare was 12.5%, compared to 5.4% for residential property and 4% for shares (ASX200) (Rural Bank, 2022). Grazing land prices have grown more in Australia than in North America and Europe.

The reasons for the rise in land value have been the coincidence of high farm profitability (strong agricultural commodity prices and high output volumes), three consecutive years of favourable seasonal conditions, low interest rates and confidence in the long-term outlook for the agricultural sector – making Australian agriculture an attractive investment for local and overseas funds.

This rapid rise in land prices boosts the asset value of Australian cattle and sheep farms and raises the revenue from any land sold but has greatly increased the cost of land purchased and restricts the capacity of smaller farms to expand and achieve economies of scale.

Figure 18: Australian farmland value and transactions



Source: Rural Bank Australian Farmland Values 2022

[4] Rural Bank Australian Farmland Values 2022 (Rural Bank 2022) and Rabobank Australian Agricultural Land Price Outlook 2022 (Rabobank 2022)

Appendix

What is *agri benchmark*?

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. It is operated as an international network of research partners coordinated by the Thünen Institute – the German government rural research body. The cattle network has over 33 member countries, covering 75% of world beef production and has been producing the results of comparative analysis over the last 17 years.

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

agri benchmark aims to assist:

- producers to better align future production through analysis of comparative performance and positioning;
- non-profit organisations (NGOs, international organisations) to monitor global agricultural challenges;
- public and industry institutions to better plan research, farm policy and programs and make their case; and
- agri-businesses to operate successfully through in-depth understanding of markets and customers.

agri benchmark has branches covering beef cattle, sheep, dairy, pigs, cash crops, horticulture, organic farming and fish.

Figure A1: Countries in the *agri benchmark* beef and sheep network

2022	Countries	Farms	Years in network
Beef	33	174*	20
Cow-calf	*28*	*73*	*16*
Finishing	*31*	*100*	*20*
Sheep	21	42	10

*37 of these farms appear twice due to complete cycle (cow-calf + finishing in one farm)

Source: *agri benchmark*

Within cattle, it covers both breeding and finishing enterprises (cow-calf and cattle finishing). It is also unique in being able to separately measure the performance of breeding and finishing operations, even on joint breeding/finishing enterprises. Furthermore, it measures beef enterprise performance separately from (and together with) other outputs where the enterprise is diversified (in southern Australia typically with cropping and/or sheep).

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 18th annual *agri benchmark* Conference (on-line), 14–18 June 2020.

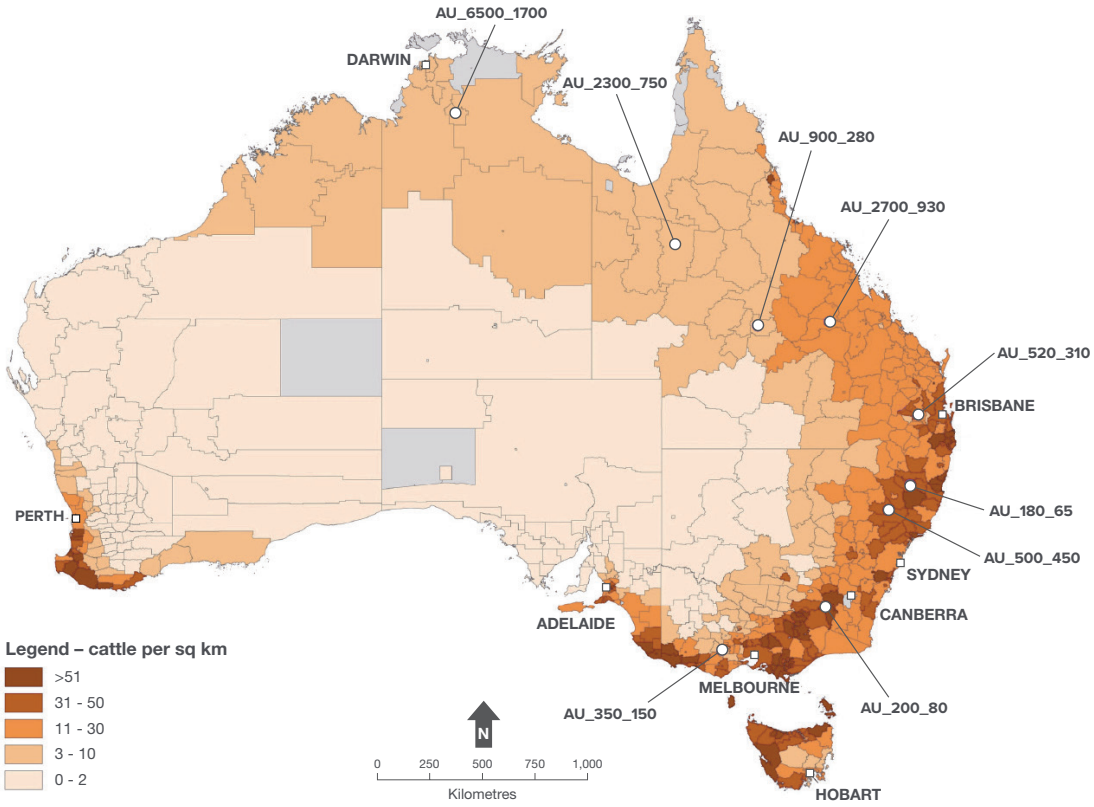
A 'typical farm' can be based on data for an actual farm judged to be typical of a key production system in a key region[5], or 'engineered' by local producers and experts to be typical (using annual data drawn from farms in the key production regions). In Australia, data was collected for nine typical beef farms in Queensland, the Northern Territory, NSW and Victoria.

[5] Such individual farm data is further 'typified' where necessary by replacing farm individual particularities by prevailing characteristics, figures, technologies and procedures.

Table A1: Australian *agri benchmark* typical beef cattle farms

Held_Sold (Cows_Steers)	Farm make-up
AU_180_65	(180 cows held_65 steers sold) – northern tablelands NSW; Angus + sheep + wool; pasture feed base
AU_200_80	Southern tablelands NSW; British breed; pasture feed base
AU_350_150	Western districts Victoria; Angus; pasture, hay, oaten grain feed based
AU_900_280	Central Queensland; *Bos Indicus*; pasture, mineral supplements feed base
AU_520_310	South east Queensland; Simmental X Droughtmaster; cattle + crops; pasture feed base
AU_6500_1700	Northern Territory, *Bos indicus*; live export; pasture, mineral supplements feed base
AU_500_450	Northern slopes NSW; Charolais X Angus; pasture, hay, sorghum feed base
AU_2700_930	Central Queensland, *Bos indicus*; cattle + crops; pasture, oats grazing feed base
AU_2300_750	Queensland Gulf, *Bos indicus*; pasture, mineral supplements feed base

Figure A2: Location of Australian *agri benchmark* typical beef farms and cattle density



Source: ABS and *agri benchmark*