Changing Production Systems: Improving Profit in Australian Dairy

High pasture harvest is not enough for consistently high levels of profit – a high percentage of pasture in the diet is also required!

Presentation to:

2021 Grasslands Society of Southern Australia Annual Conference

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Presentation outline

- ❑ Background
- ❑ The ‘argument’
- ❑ Some key trends
- ❑ Is increasing milk revenue ‘the answer’?
- ❑ Is pasture harvest ‘the problem’?
- ❑ Why is pasture harvest important?
- ❑ Is total feed cost ‘the answer’?
- ❑ How does pasture as a per cent of the diet impact profit?
- ❑ What else might pasture affect?
- ❑ Summary

Background to presentation

Informed from two published papers and one report

Paper #1:

Beca, D. (2020), '**Evaluating the Loss of Profitability and Declining Milk Production in the Australian Dairy Industry**', *Australasian Agribusiness Perspectives* 23, Paper 9, pp. 136-164.

Paper #2:

Beca, D. (2020), '**Key Determinants of Profit for Pasture-based Dairy Farms**', *Australasian Agribusiness Perspectives* 23, Paper 16, pp. 247-274.

Report:

Beca, D. (2021), '**Australian Dairy Industry Farm Performance Data: International and State-by-State Competitiveness**', *Red Sky website*, http://redskyagri.com/page/redsky_58.html.

Sources of data

DATA SOURCES		
COUNTRY	National Statistics	Farm Performance Analysis
Australia	Dairy Australia	Dairy Farm Monitor Project, QDAS, Red Sky
Victoria		Dairy Farm Monitor Project, Red Sky
Tasmania		Dairy Farm Monitor Project, Red Sky
New South Wales		Dairy Farm Monitor Project
Queensland		QDAS
South Australia		Dairy Farm Monitor Project, Red Sky
Western Australia		Dairy Farm Monitor Project, Red Sky
New Zealand	DairyNZ	DairyBase, Red Sky
Argentina	MAGYP	AACREA
Uruguay	INALE	FUCREA
South Africa	MPO	Red Sky
United States	USDA	Genske Mulder
Ireland	CSO	Teagasc
United Kingdom	DEFRA	AHDB

The ‘argument’

The question:

- ❖ **How can profit be improved in Australian dairy**

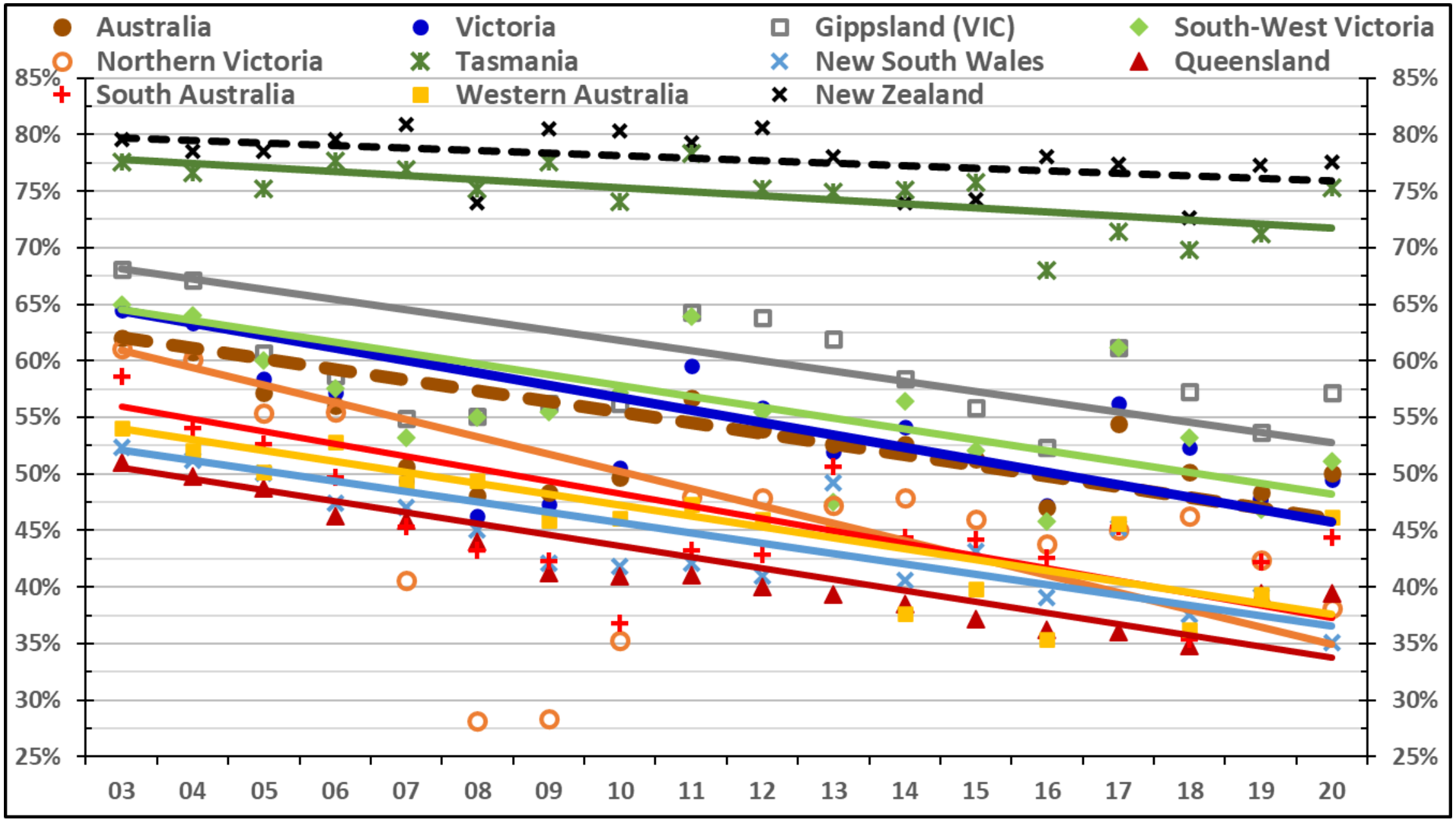
The argument:

- ✓ **Pasture harvest is important to profit**
- ✕ **Pasture as per cent of the cows’ diet is unimportant**

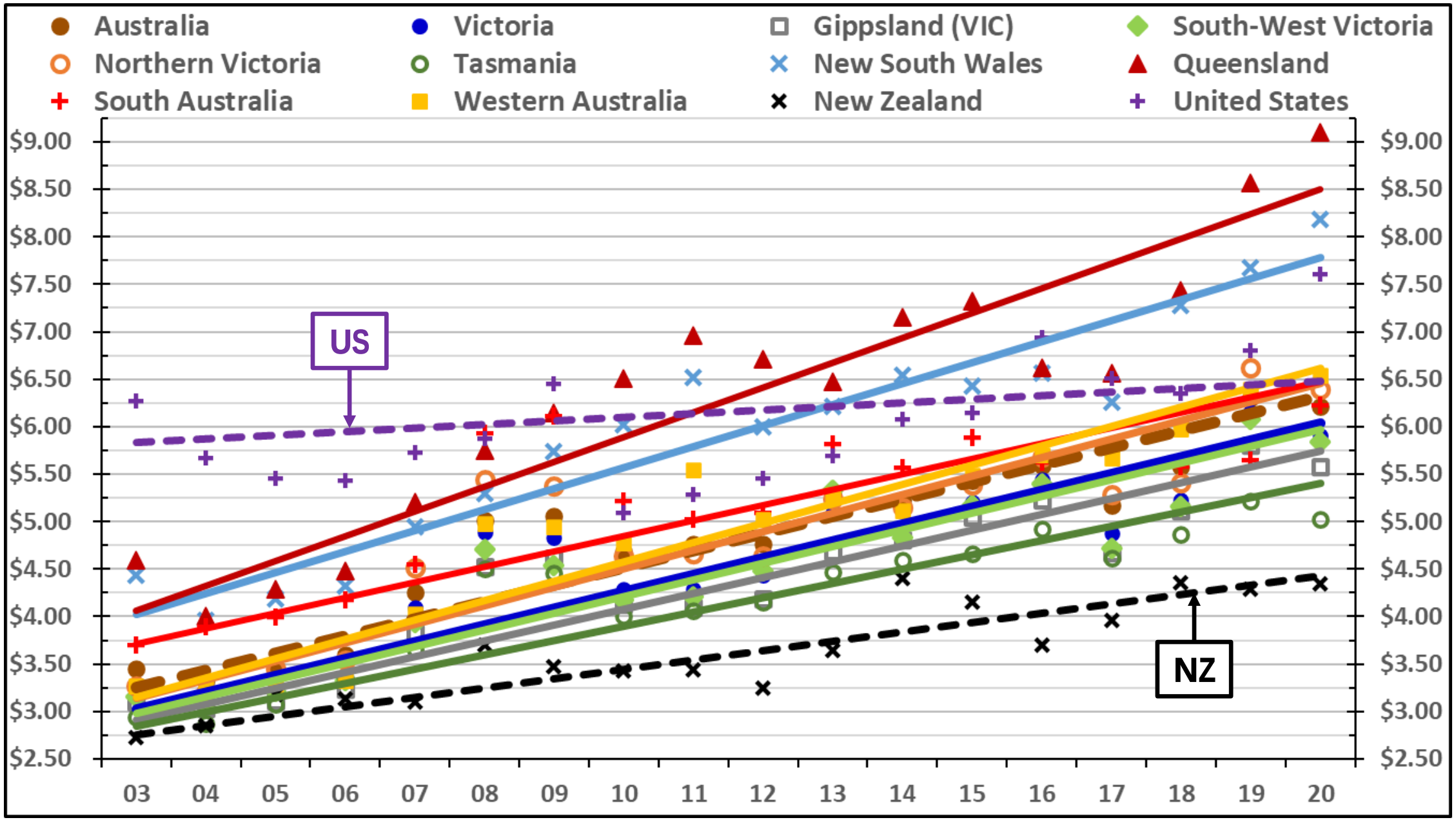
Definitions:

- ❑ **‘Pasture’ – includes all pasture and other crops consumed in-situ by the cows as well as any pasture mechanically harvested on the dairy farm**
- ❑ **‘Pasture-based’ – refers to farms where cows consistently walk to paddocks and harvest the pasture themselves (no minimum percentage level of pasture)**

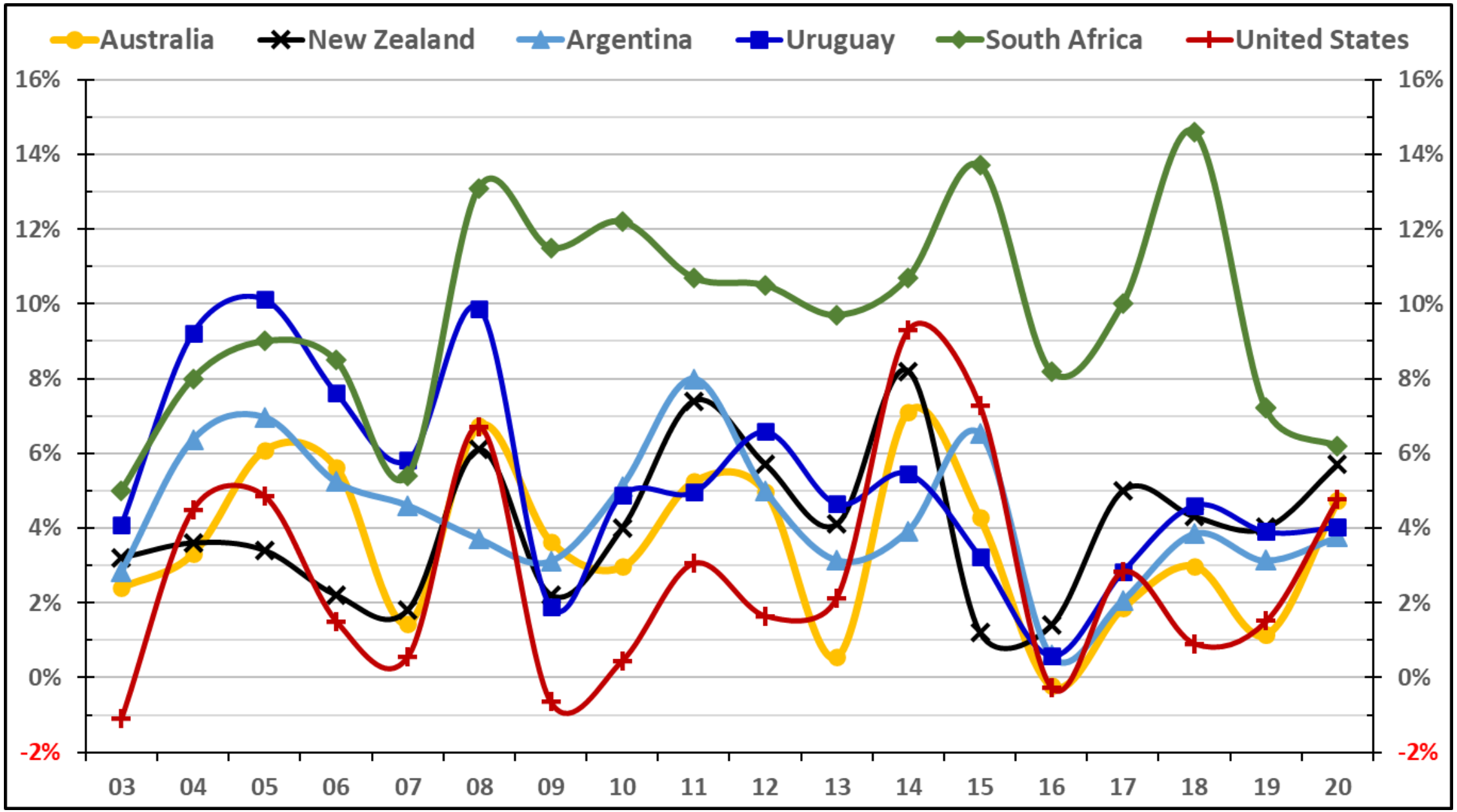
Trend in pasture as a percentage of cows' diet (2003-2020)



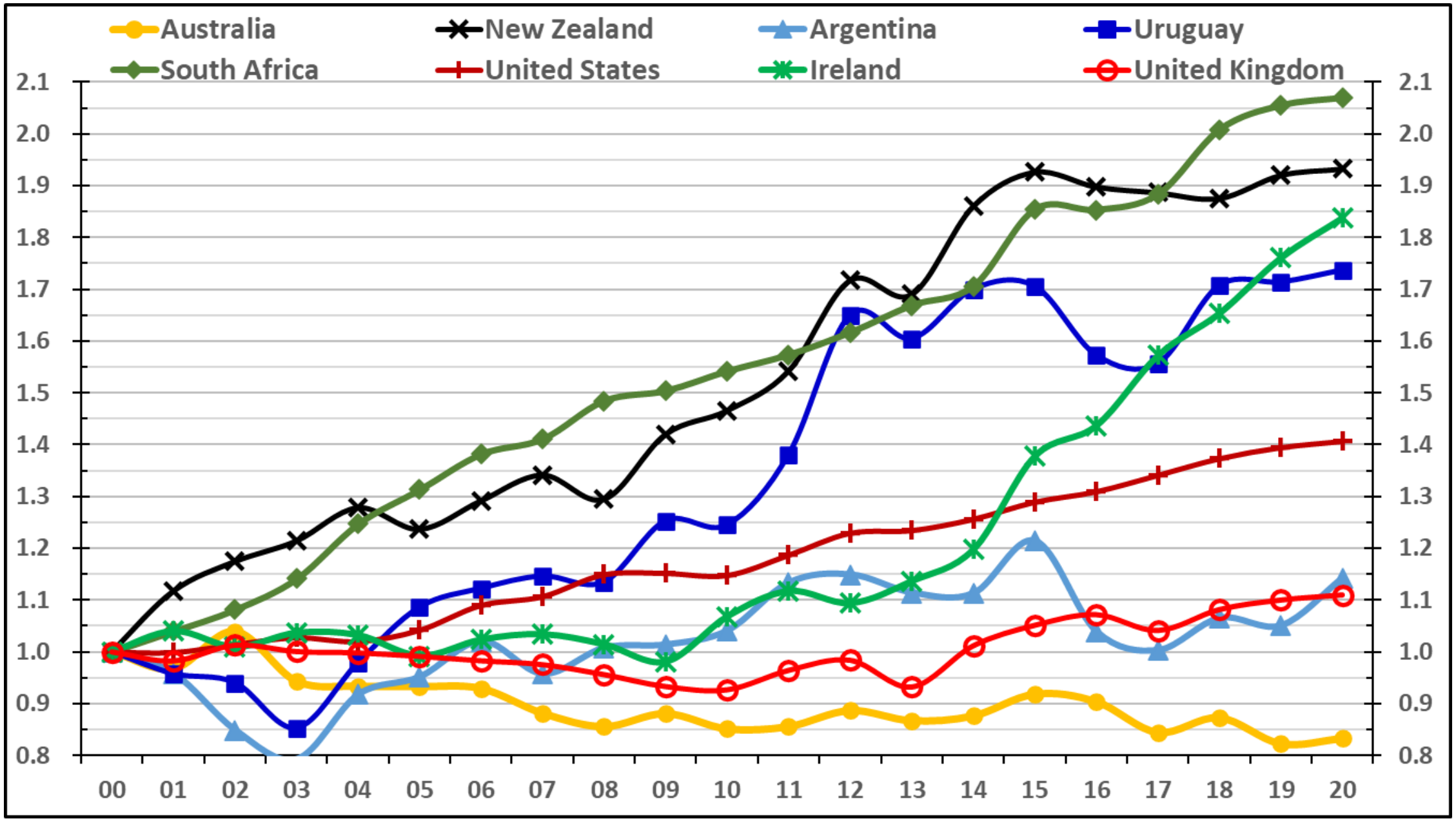
Trend in cost of production per kg milksolids (AUD 2003-2020)



Profit = Return on capital (2003-2020)



Growth in milksolids production from 2000 (base = 1.0)



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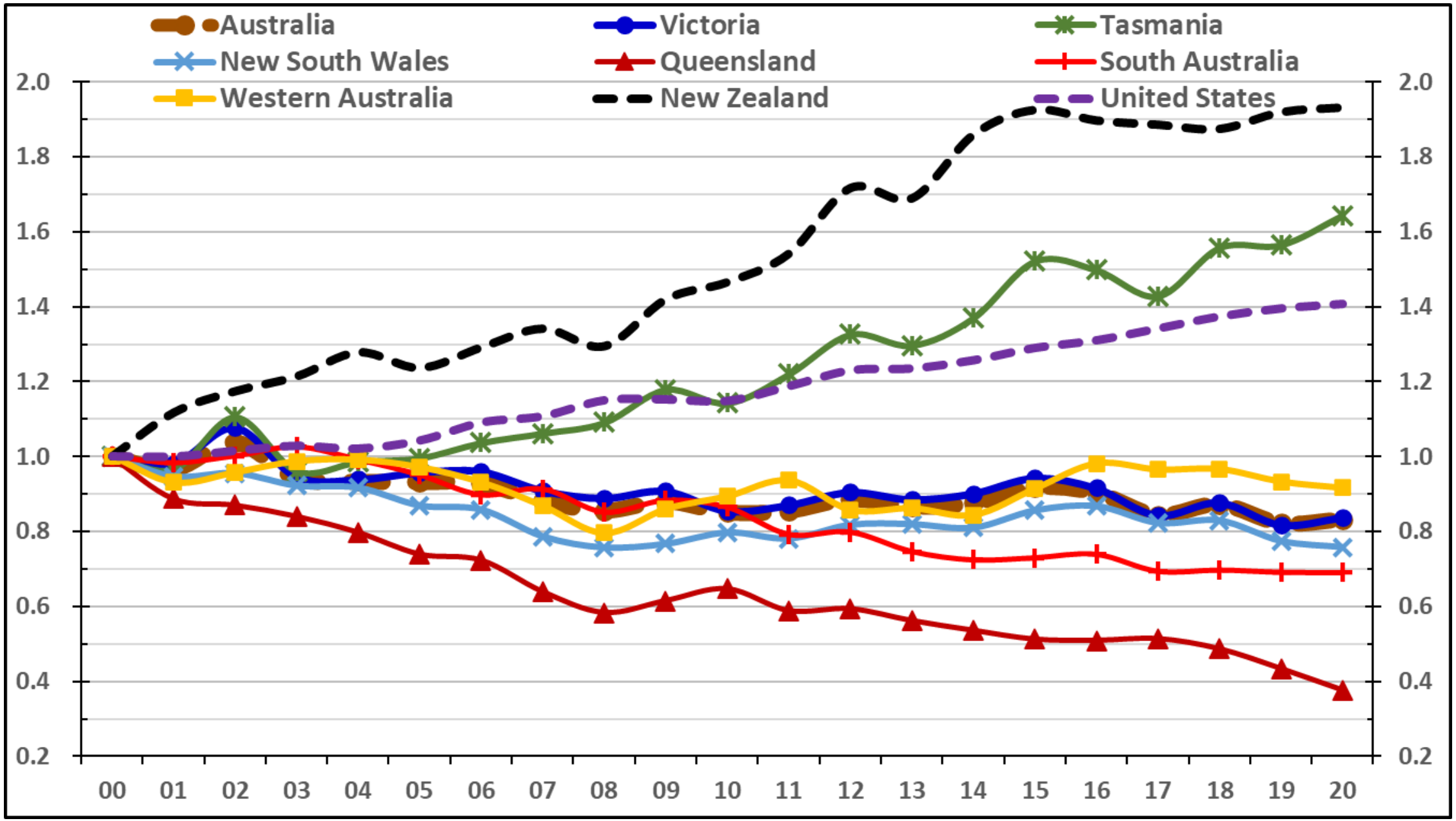
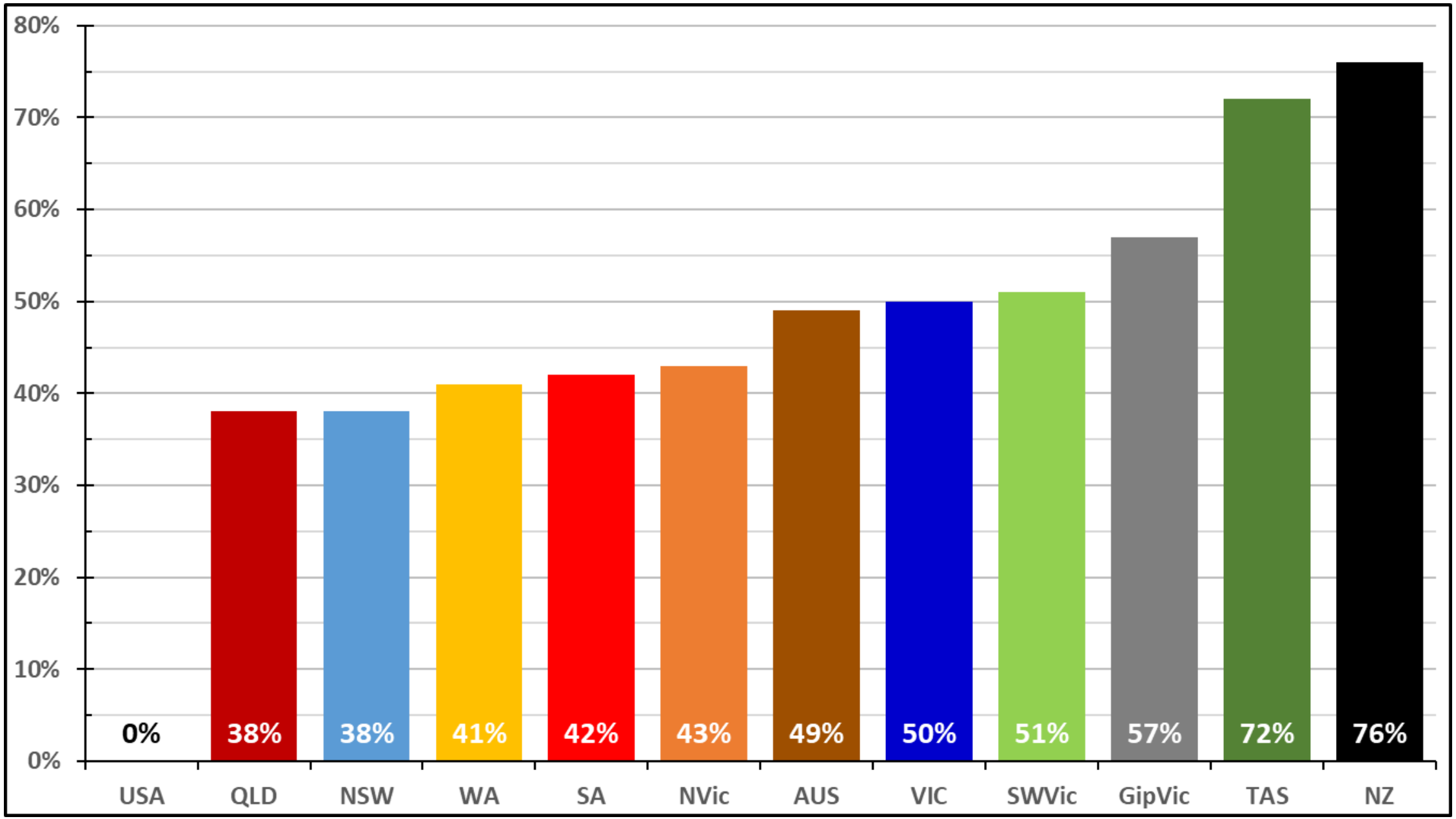
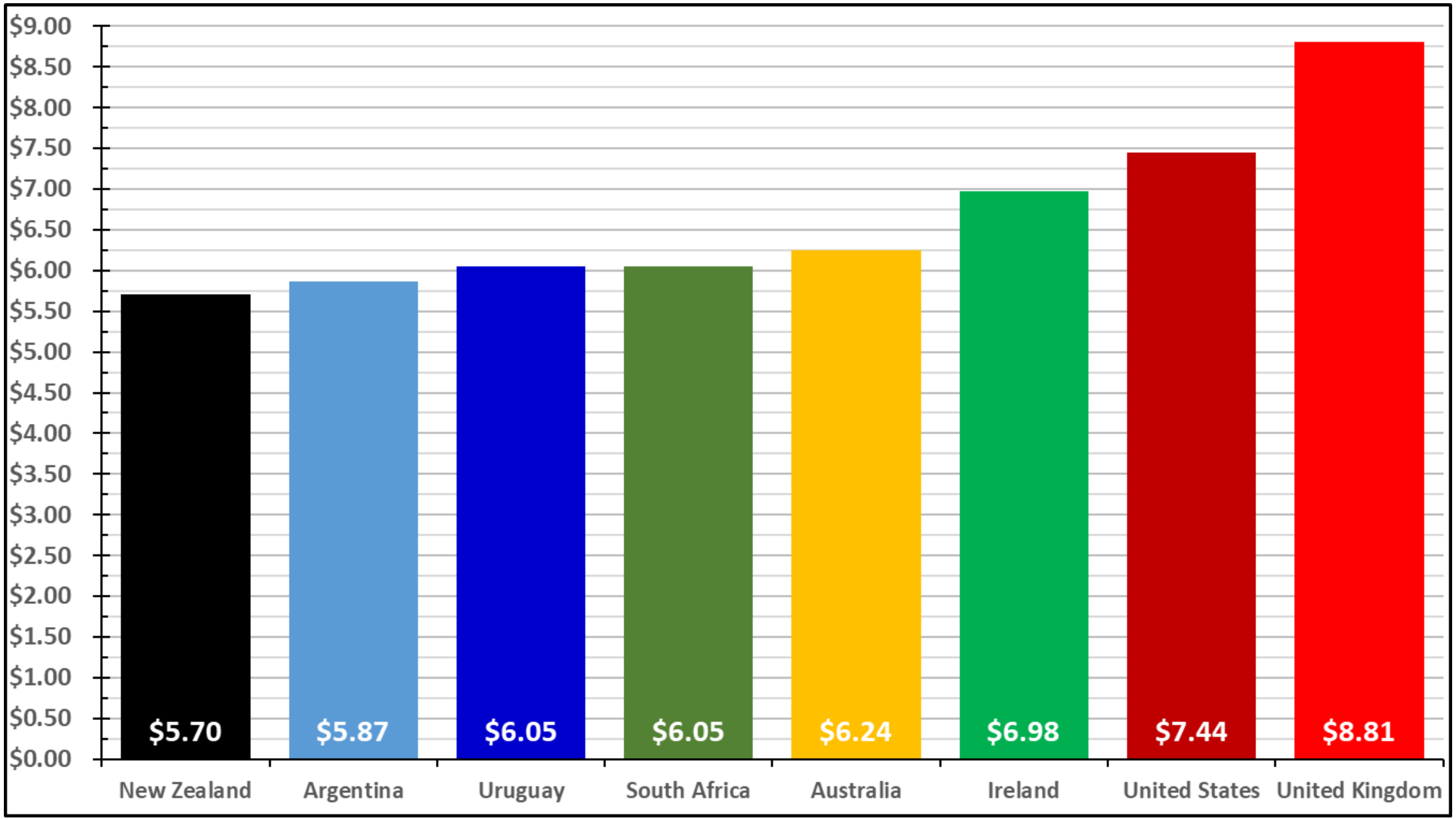


Percent of pasture in cows' diet (2019-2020)



Milk price per kg milksolids (AUD 2015-2020)



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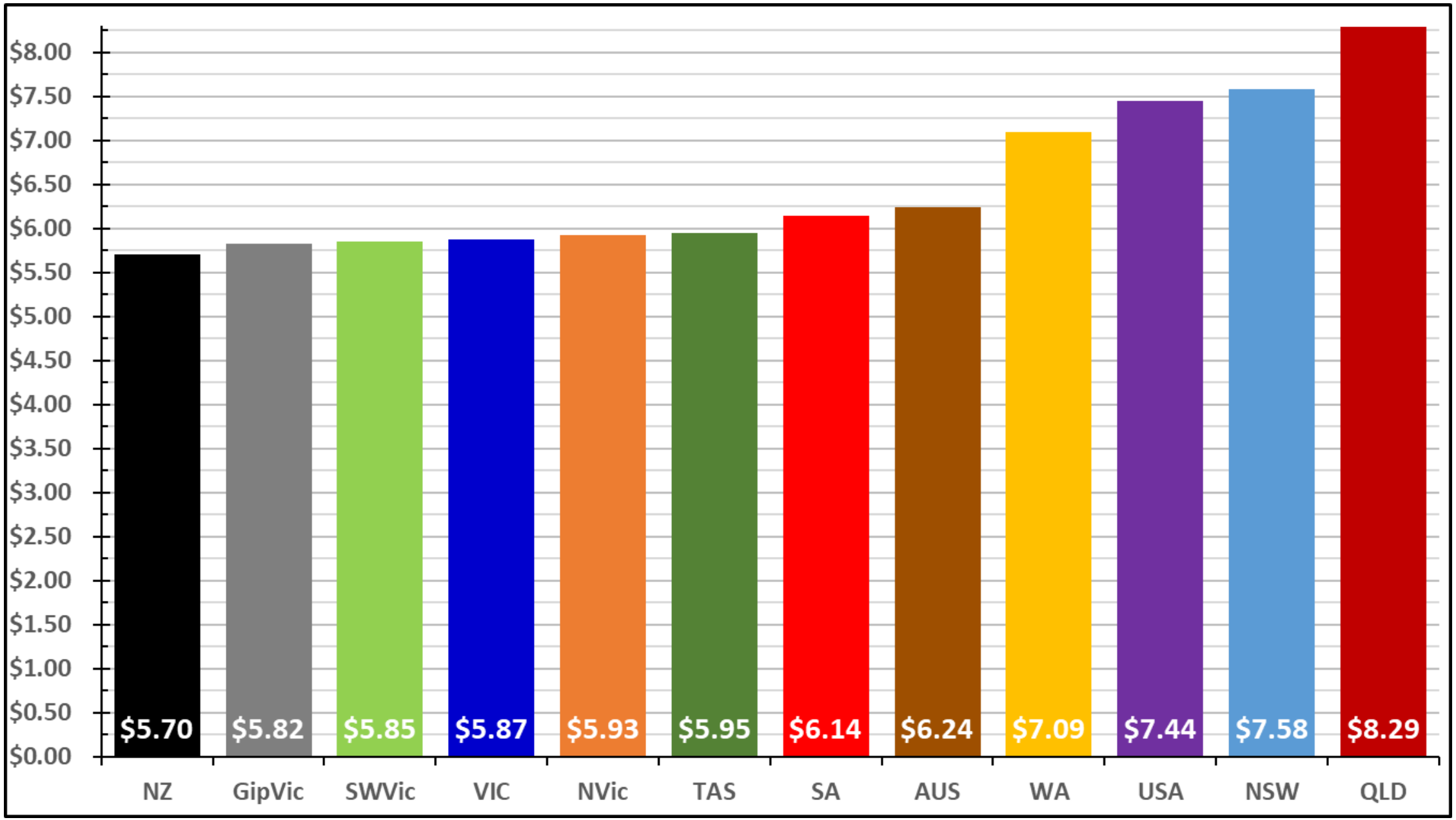
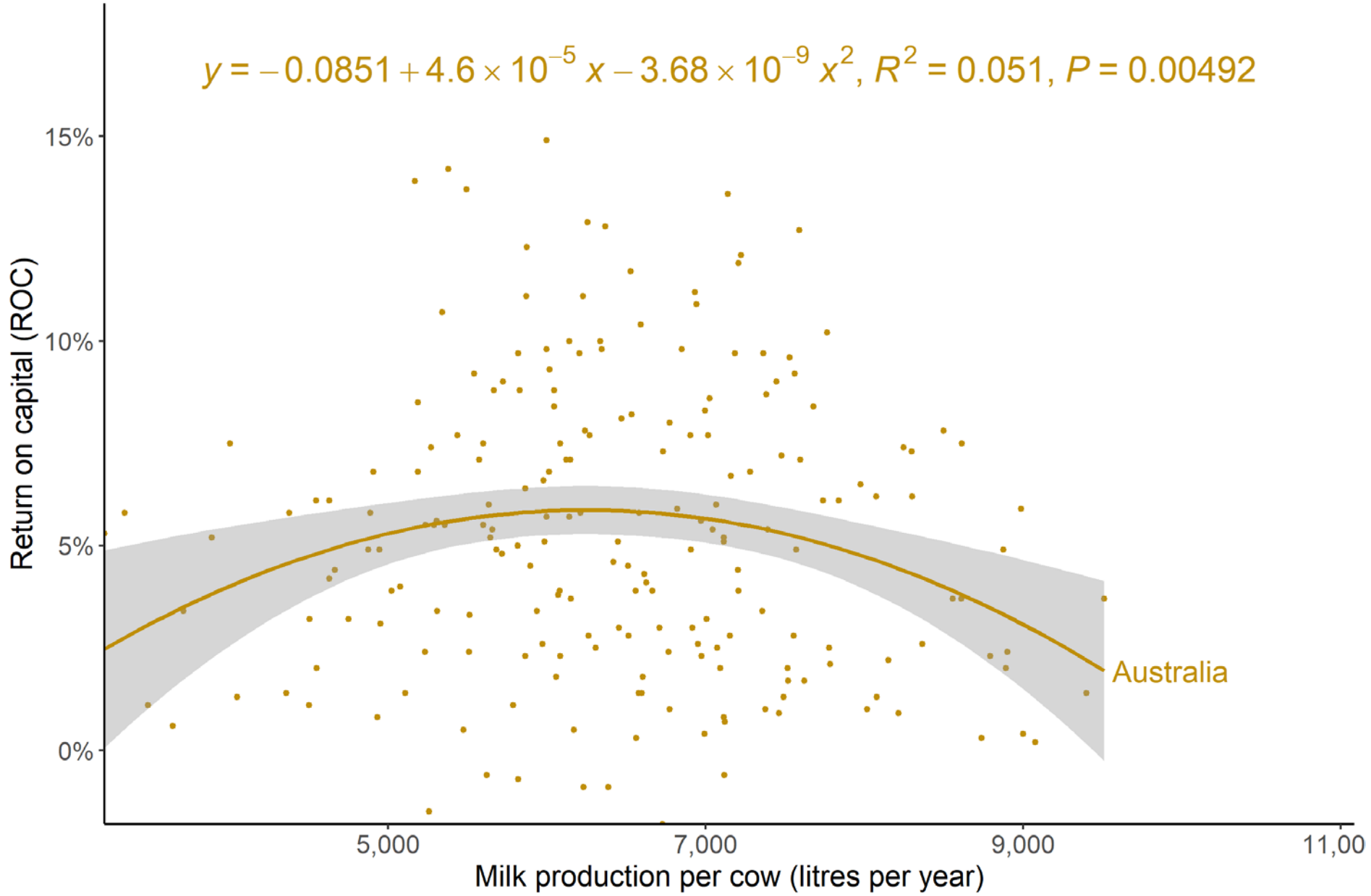
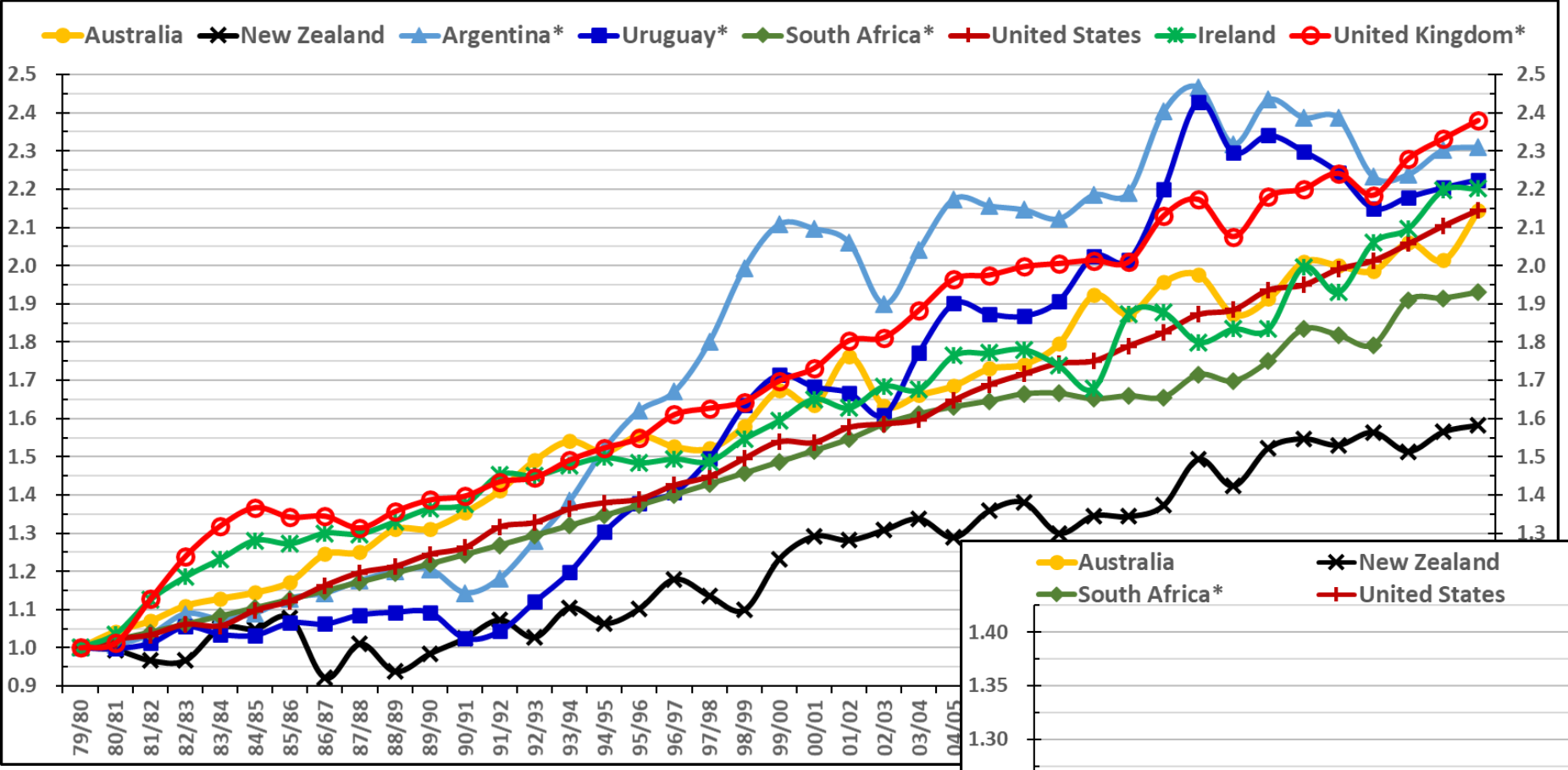


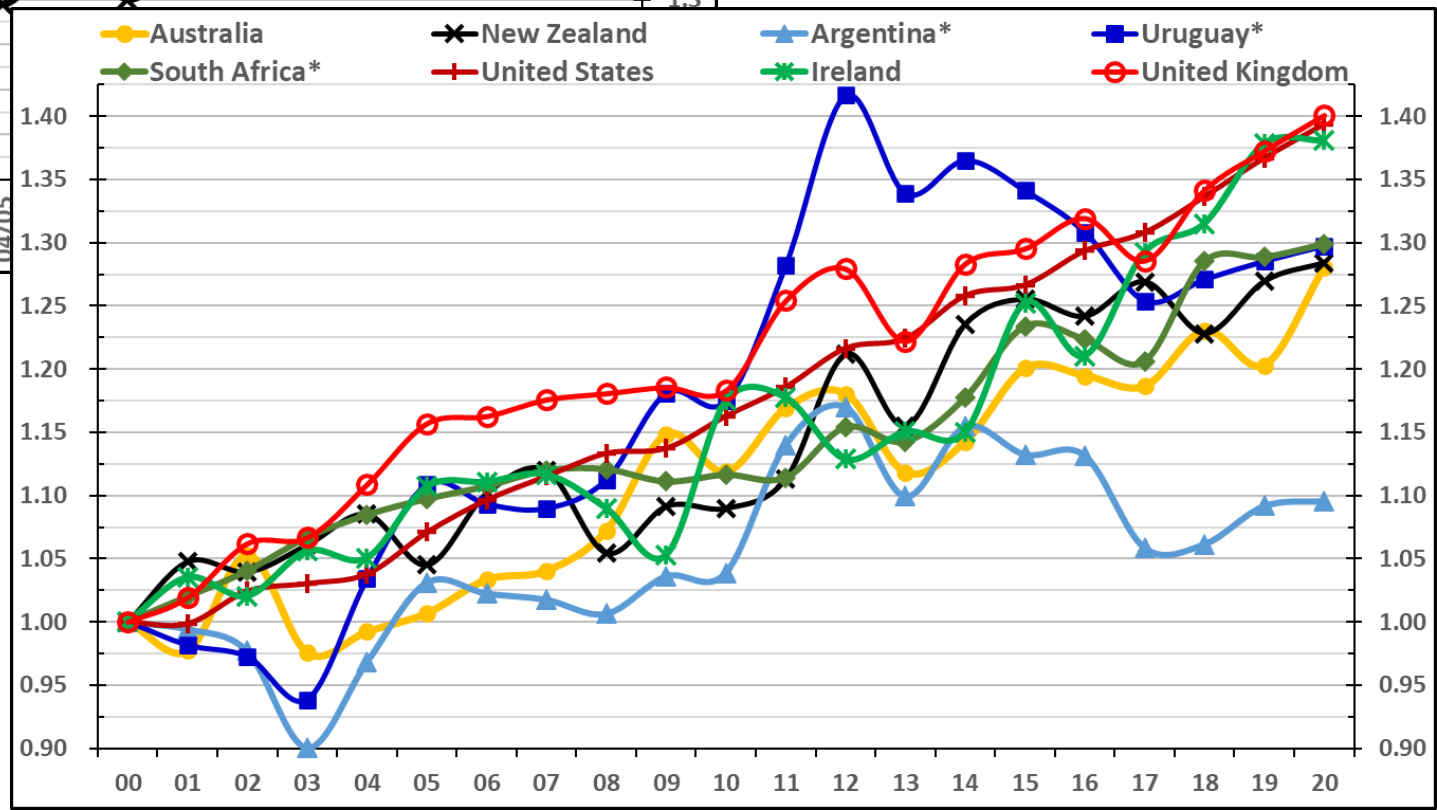
Milk production per cow impact on return on capital (profit)





Growth in milk production per cow

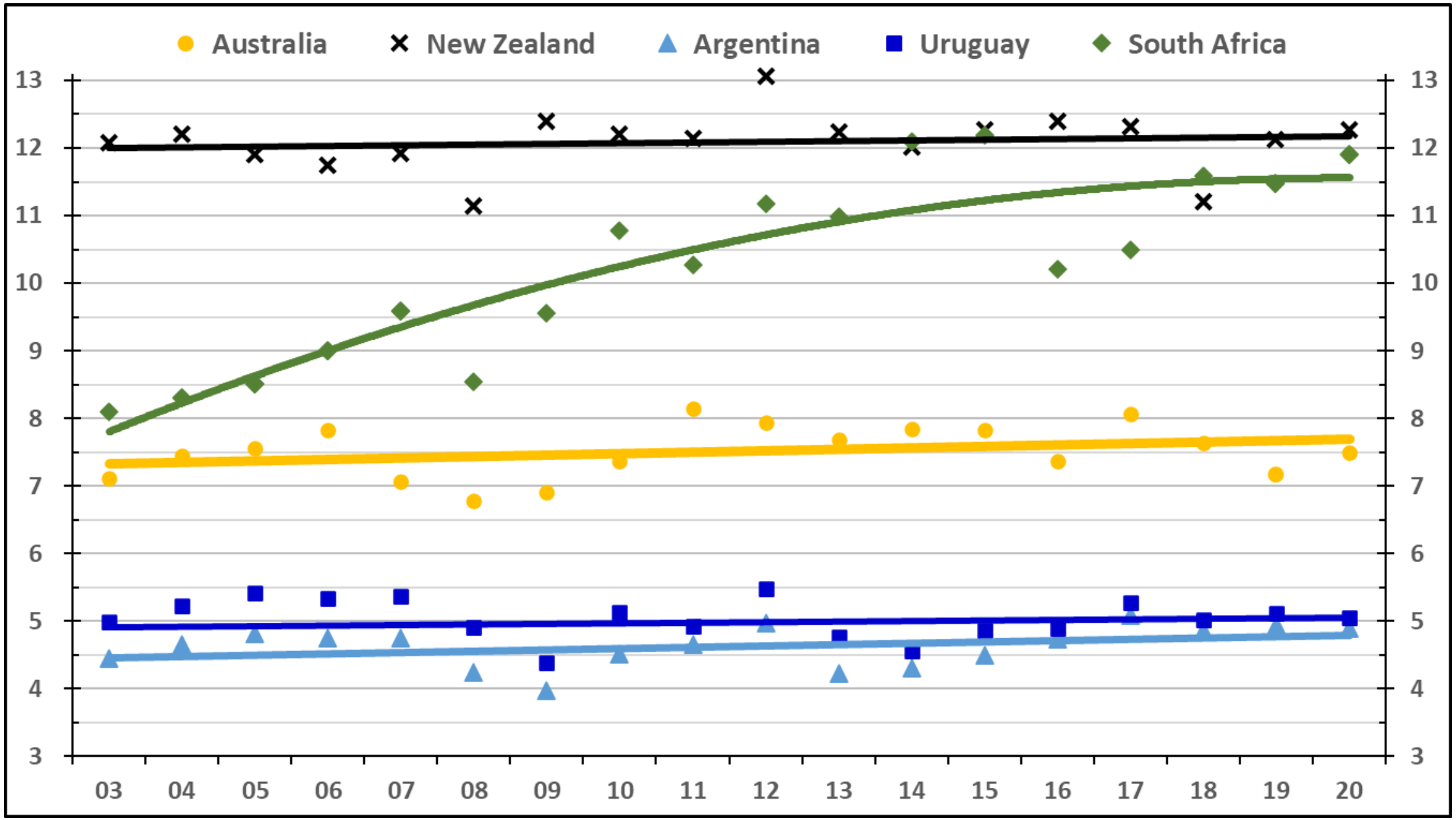
← 1980-2020



Growth in milk production per cow

2000-2020 →

Pasture harvest in tonnes dry matter per hectare (2003-2020)



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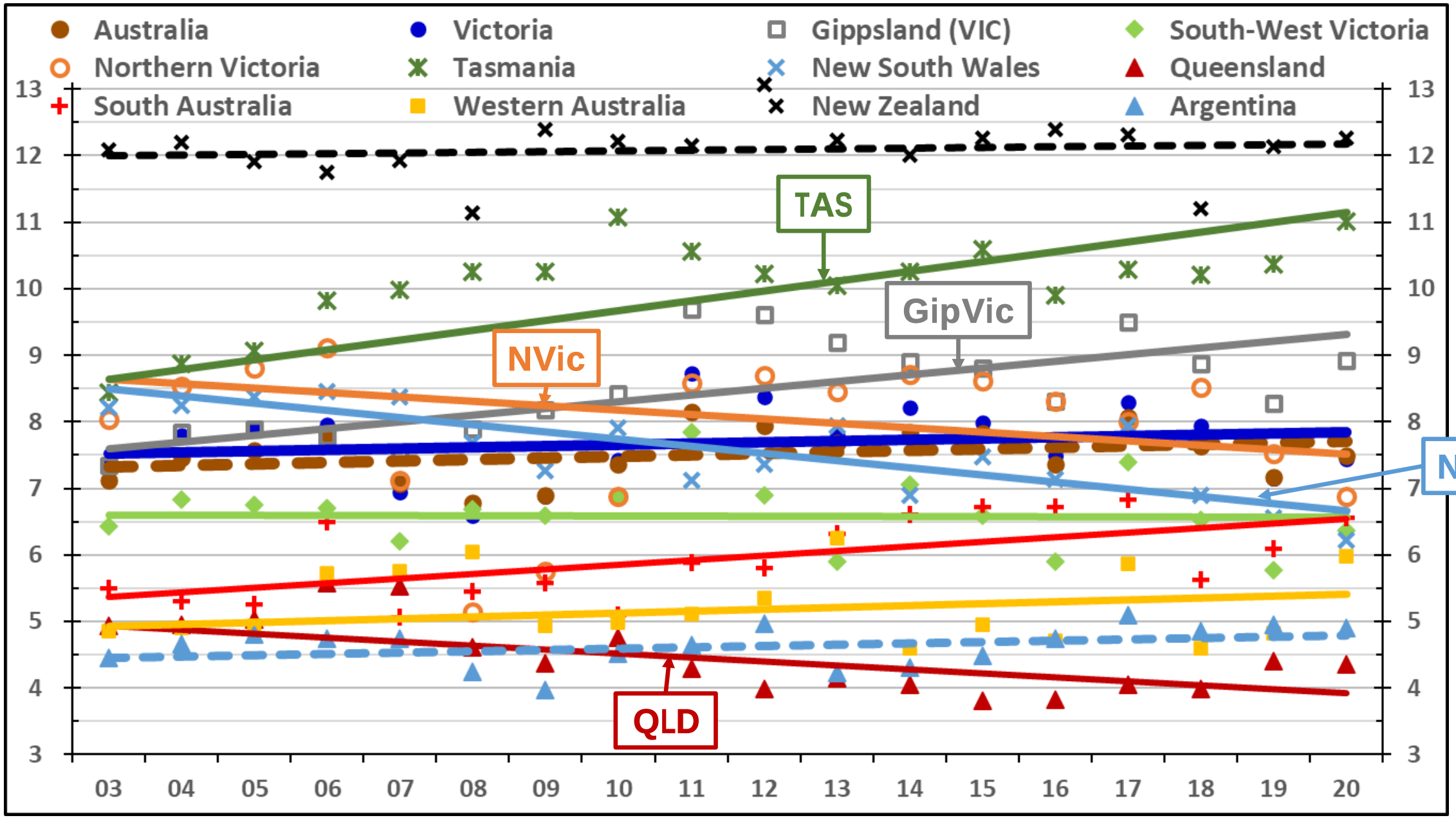
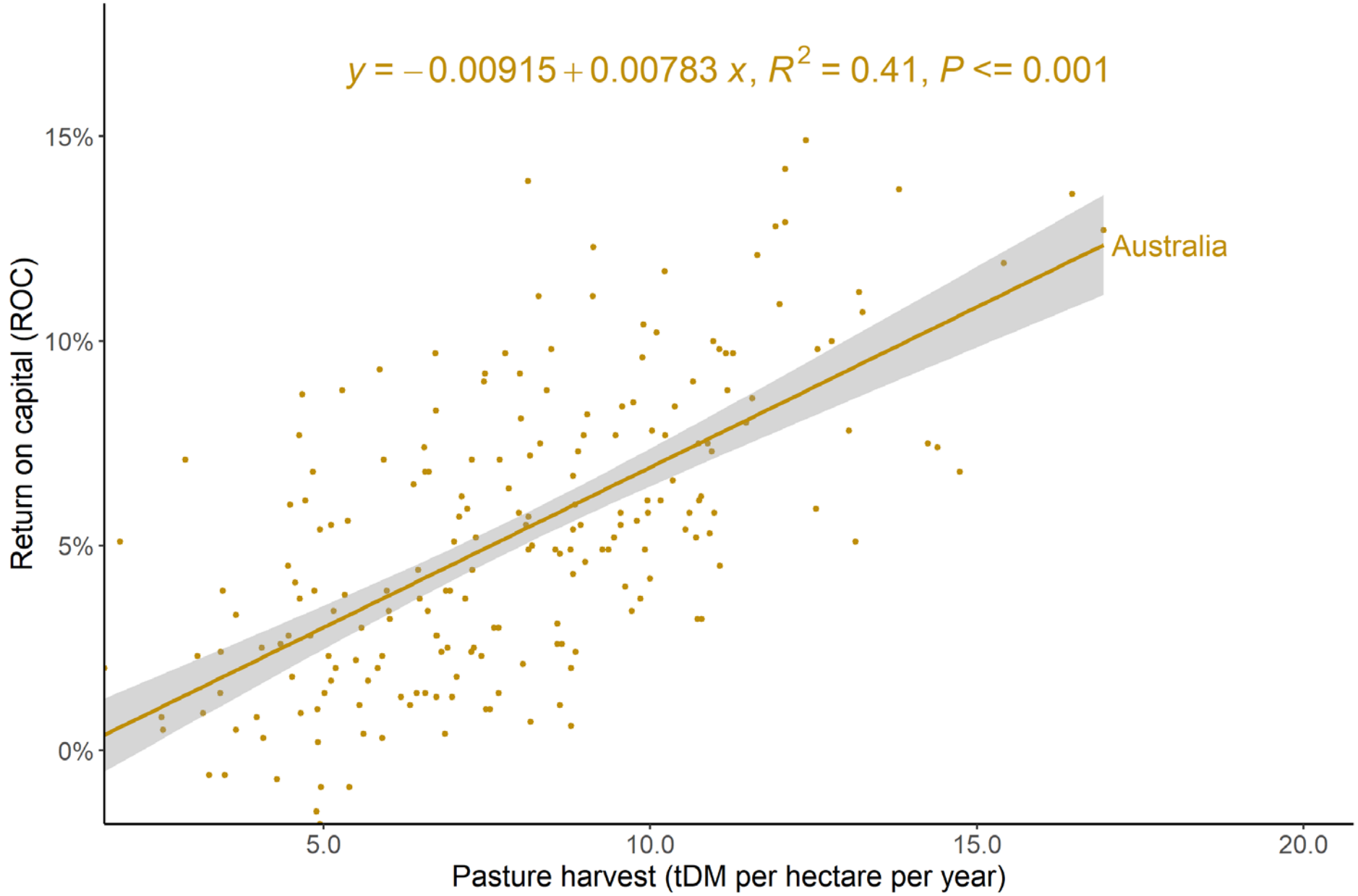


Pasture harvest impact on return on capital (profit)



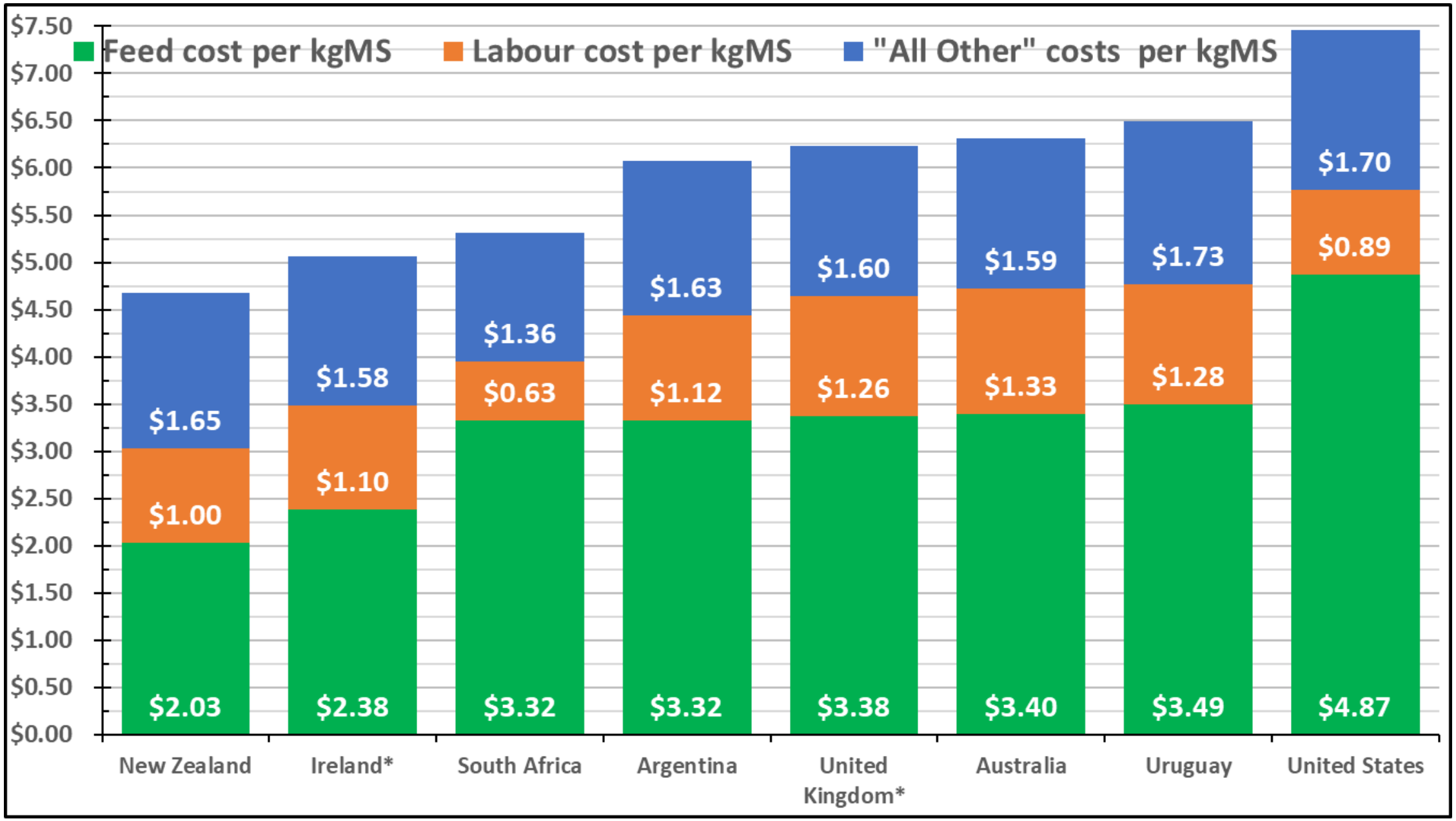
Cost of pasture, concentrates, and forages (AUD/tDM 2015-2020)

2015-2020 (AUD/tDM)	Pasture Cost *	Concentrate Cost **	Concentrate : Pasture Ratio	Forage Cost **	Forage : Pasture Ratio
Australia	**$135**	**$427**	**+ 216%**	**$237**	**+ 76%**
Victoria	$126	$412	+ 227%	$223	+ 77%
Gippsland	$94	$428	+ 356%	$226	+ 140%
South-West Victoria	$114	$410	+ 260%	$214	+ 88%
Northern Victoria	$175	$398	+ 128%	$231	+ 32%
Tasmania	$85	$475	+ 461%	$236	+ 178%
New South Wales	$196	$450	+ 130%	$292	+ 49%
Queensland	$148	$473	+ 220%	$302	+ 104%
South Australia	$157	$396	+ 152%	$256	+ 63%
Western Australia	$192	$460	+ 140%	$215	+ 12%
New Zealand	$56	$338	+ 506%	$297	+ 434%
Argentina	$133	$248	+ 86%	$193	+ 45%
Uruguay	$114	$355	+ 210%	$207	+ 81%
South Africa	$108	$409	+ 278%	$155	+ 44%
Ireland ***	$70	$439	+ 525%	$250	+ 256%
United Kingdom ***	$97	$418	+ 331%	$263	+ 171%

Split of feed cost, labour cost, and “all other” costs (AUD 2015-2020)

2015-2020 (AUD / kgMS)	Total Expenses	Total Feed Cost	Total Labour Cost	"All Other" Costs	Feed Cost as % Total Exp.	Labour Cost as % Total Exp.	"Other" Costs as % Total Exp.
Australia	**$6.31**	**$3.40**	**$1.33**	**$1.59**	**53.8%**	**21.1%**	**25.1%**
Victoria	$5.94	$3.26	$1.18	$1.50	54.9%	19.8%	25.3%
Gippsland	$5.72	$2.96	$1.23	$1.53	51.8%	21.5%	26.7%
South-West Victoria	$5.86	$3.18	$1.13	$1.54	54.3%	19.4%	26.3%
Northern Victoria	$6.26	$3.68	$1.17	$1.42	58.7%	18.7%	22.6%
Tasmania	$5.41	$2.71	$1.20	$1.50	50.1%	22.2%	27.7%
New South Wales	$7.99	$4.10	$1.91	$1.97	51.4%	24.0%	24.7%
Queensland	$8.58	$4.79	$1.86	$1.94	55.8%	21.7%	22.6%
South Australia	$6.67	$3.43	$1.51	$1.74	51.4%	22.6%	26.0%
Western Australia	$7.08	$3.92	$1.46	$1.70	55.3%	20.7%	24.0%
New Zealand	$4.68	$2.03	$1.00	$1.65	43.5%	21.3%	35.3%
United States	$7.46	$4.87	$0.89	$1.70	65.3%	12.0%	22.8%
Argentina	$6.07	$3.32	$1.12	$1.63	54.7%	18.4%	26.9%
Uruguay	$6.49	$3.49	$1.28	$1.73	53.8%	19.6%	26.6%
South Africa	$5.31	$3.32	$0.63	$1.36	62.6%	11.9%	25.5%
Ireland*	$5.06	$2.38	$1.10	$1.58	47.0%	21.8%	31.2%
United Kingdom*	$6.24	$3.38	$1.26	$1.60	54.1%	20.2%	25.6%
Pasture-based farms in Australia					**50%-60%**	**20%-25%**	**20%-30%**
Feedlot / confinement farms					**60%-70%**	**10%-15%**	**15%-30%**

Total expenses per kgMS (AUD ECM 2015-2020)–Feed+Labour+"All Other"



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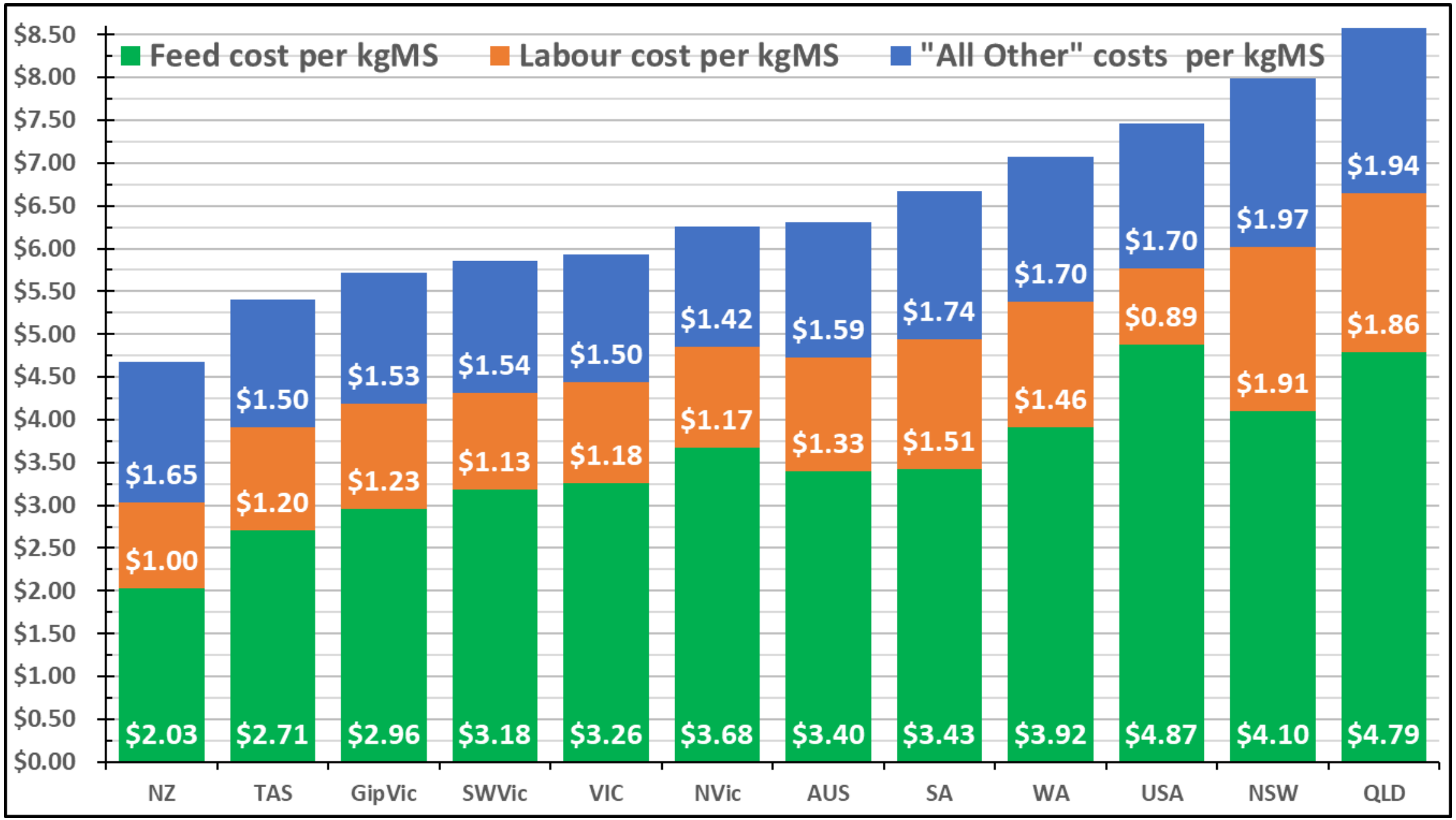


Change in consumed feed cost in AUD/tDM as percentage of pasture in the diet changes (2015-2020)

AUSTRALIA average feed cost 2015-2020 (AUD per tonne dry matter)								
Pasture percent of diet	**0%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**
Pasture cost *		$135	$135	$135	$135	$135	$135	$135
Pasture cost **		$165	$155	$144	$134	$124	$114	$103
Concentrate cost ***	$427	$427	$427	$427	$427	$427	$427	$427
Forage cost ***	$237	$237	$237	$237	$237	$237	$237	$237
Supplement cost ******	$370	$370	$370	$370	$370	$370	$370	$370
Average feed cost *	**$370**	**$323**	**$299**	**$276**	**$252**	**$229**	**$205**	**$182**
Average feed cost **	**$370**	**$329**	**$305**	**$280**	**$252**	**$222**	**$190**	**$157**

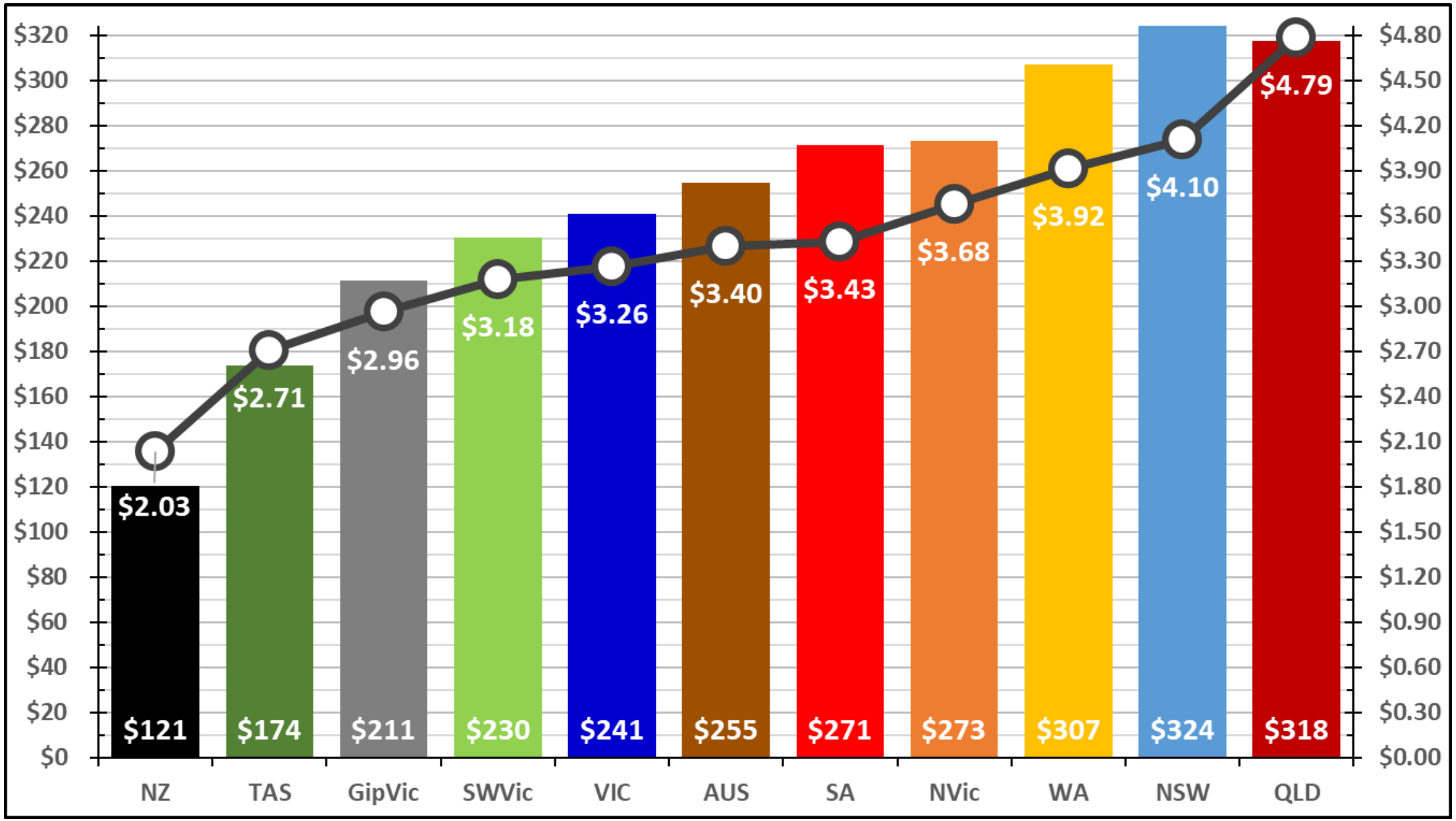
* Pasture cost (and Average feed cost) include pasture cost held constant for all variations in pasture percent

** Pasture cost (and Average feed cost) include pasture cost adjusted for impact of variations in pasture percent

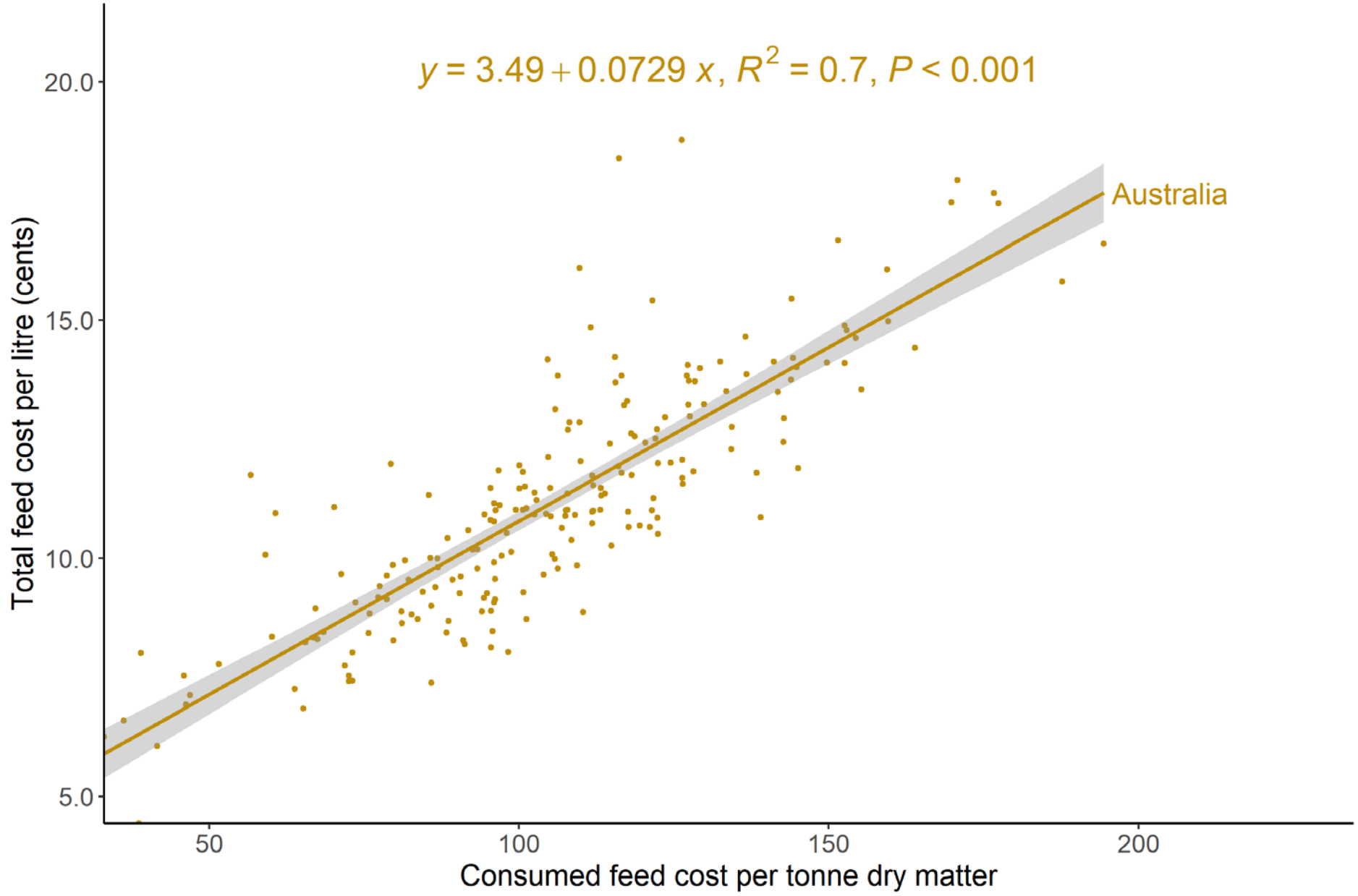
*** Concentrate cost and forage cost include wastage and storage costs

**** Supplement cost based on 70% concentrate plus 30% forage

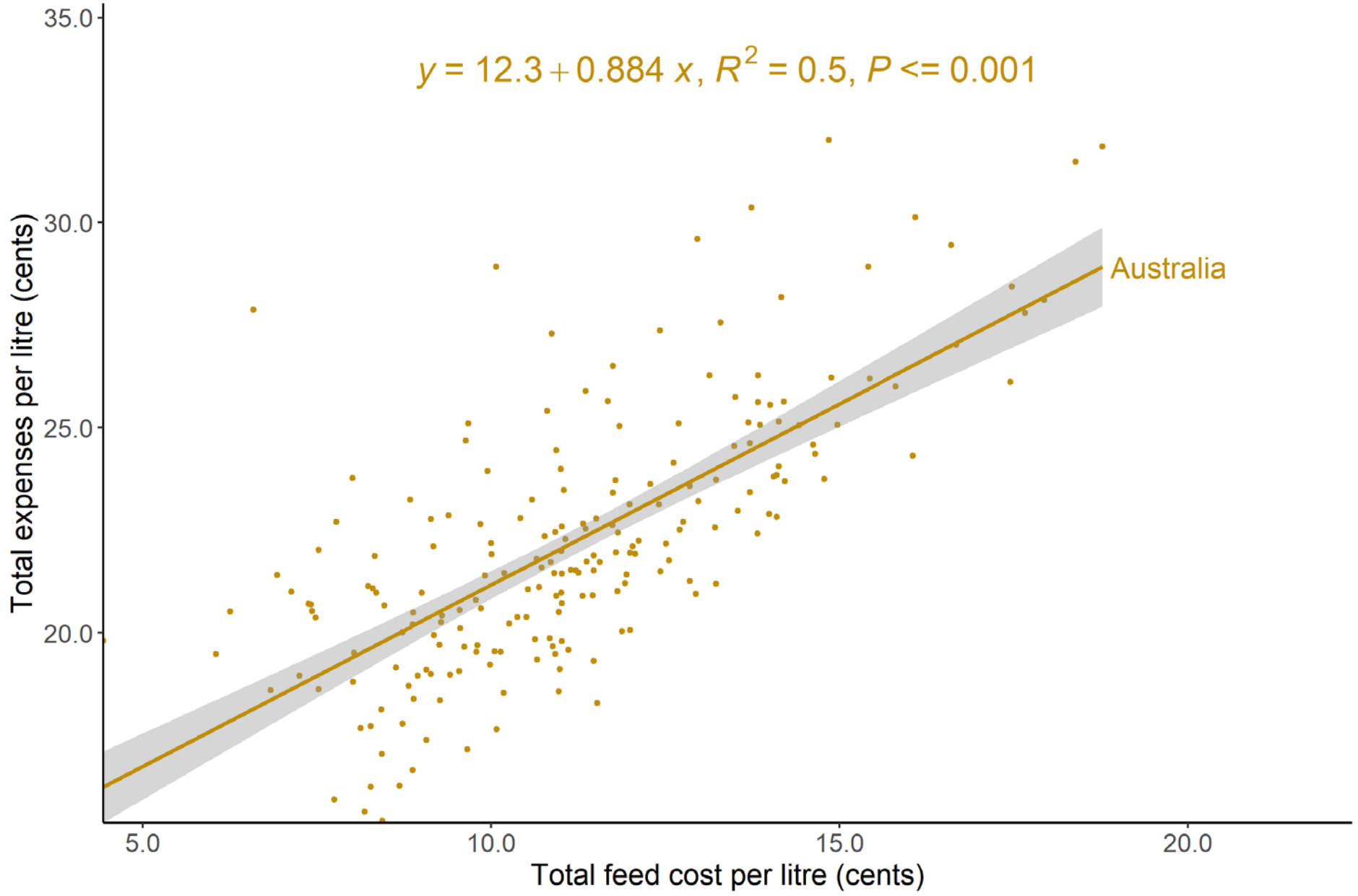
Average consumed feed cost per tDM (LHS) vs Total feed cost per kg milksolids (RHS) (AUD 2015-2020)



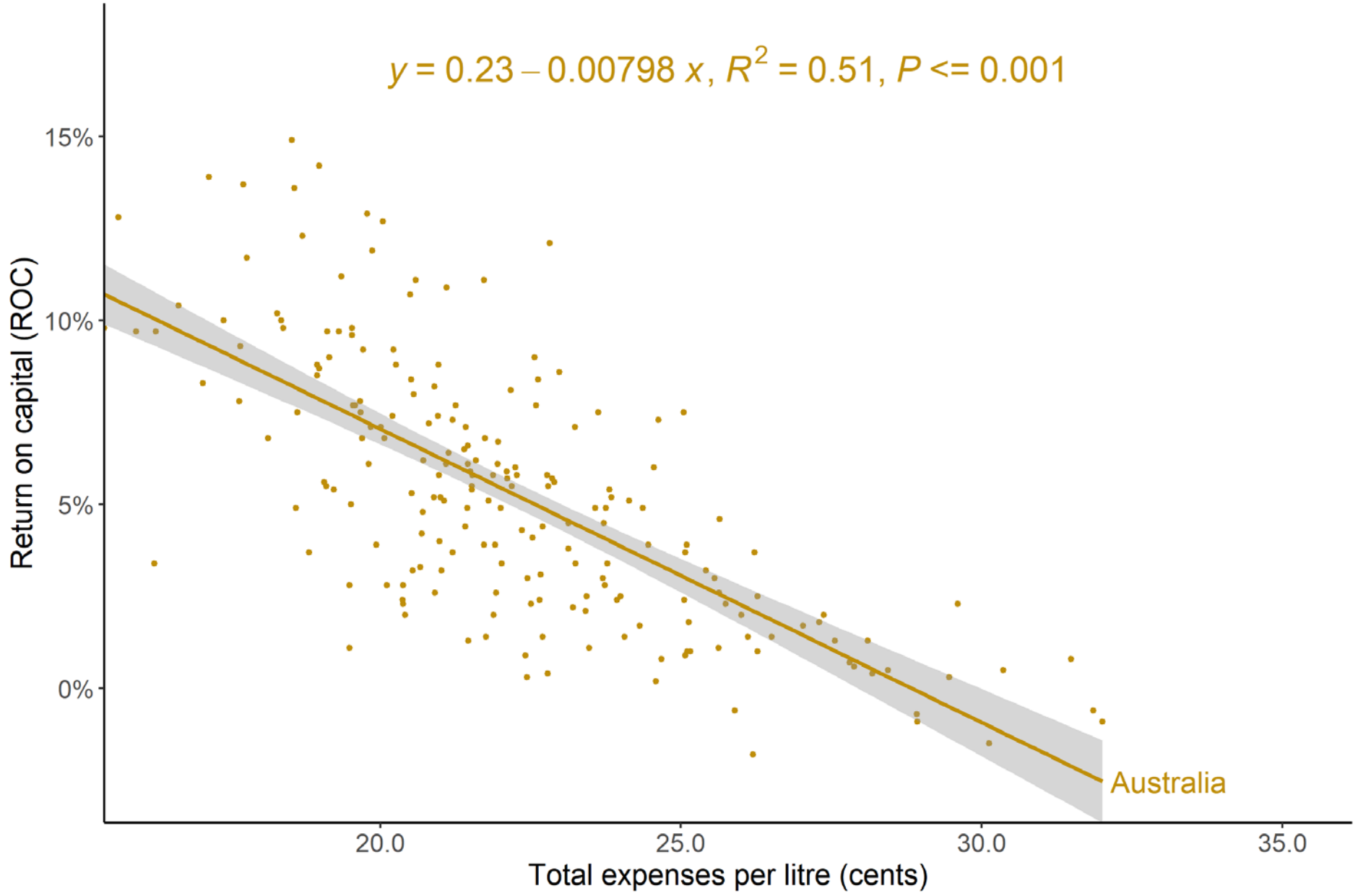
Consumed feed cost per tDM impact on feed cost per litre (ECM)



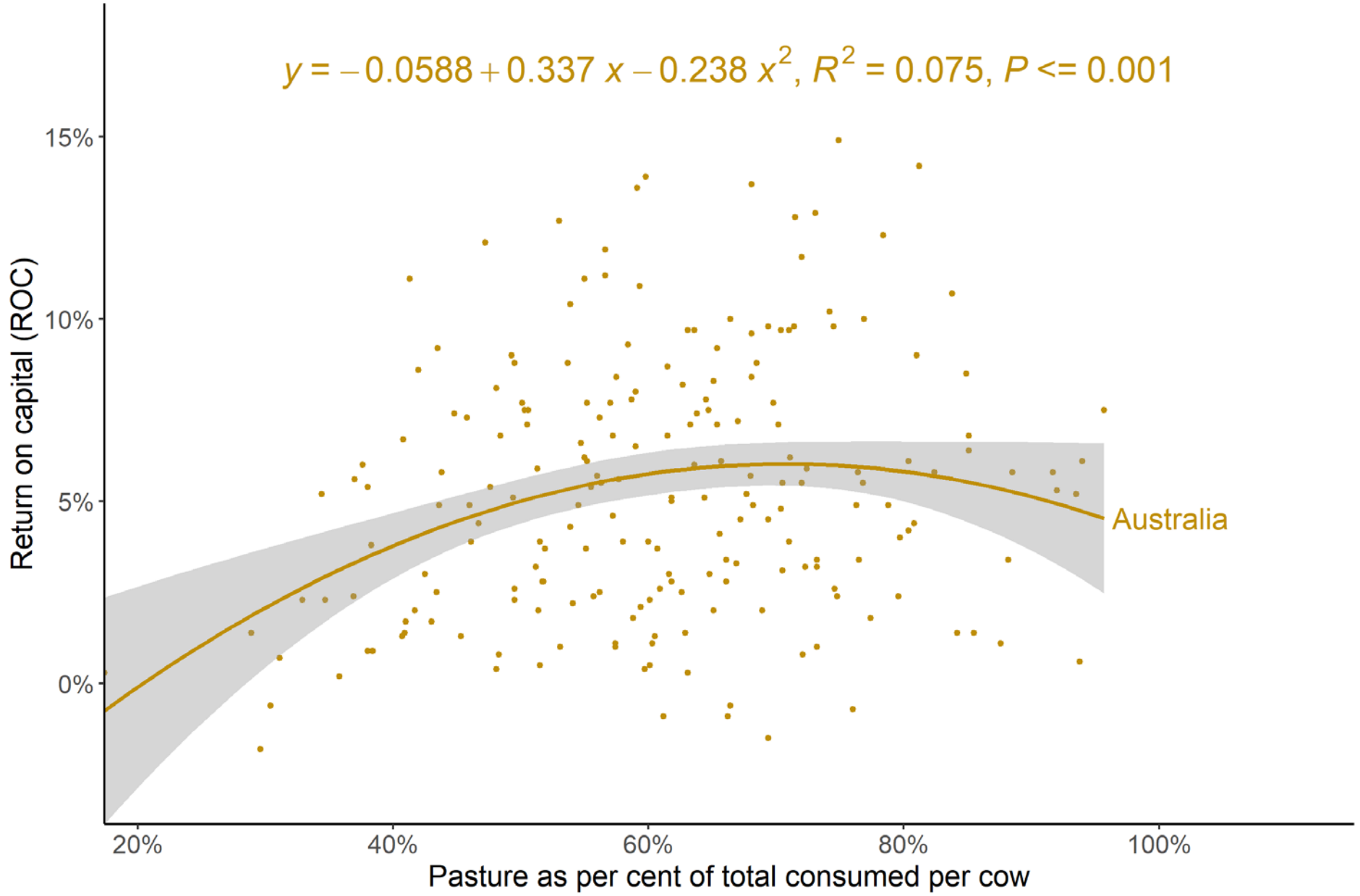
Feed cost per litre impact on total expenses per litre (ECM)



Total expenses per litre impact on return on capital (profit)



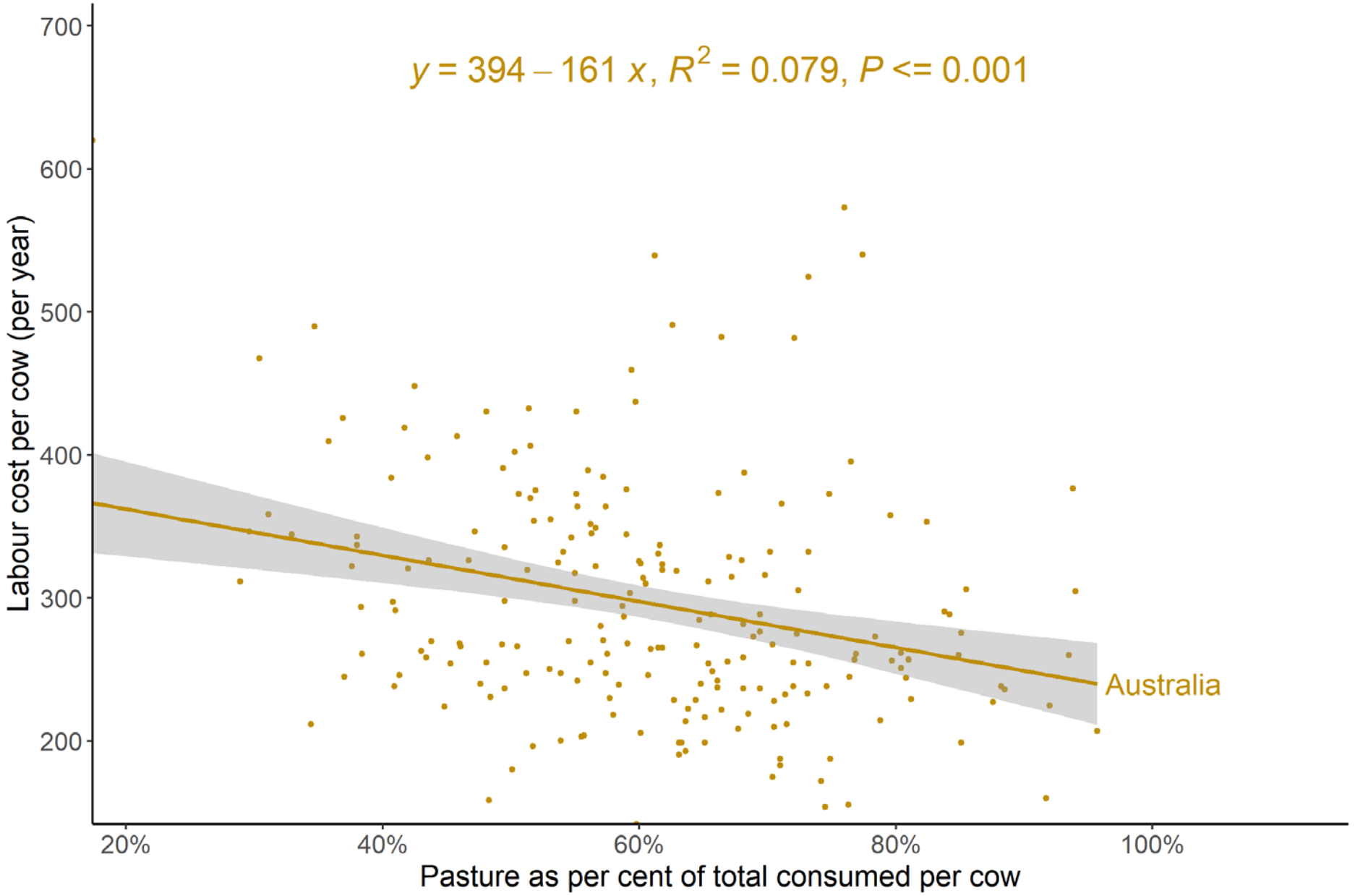
Pasture per cent in cows' diet impact on return on capital (profit)



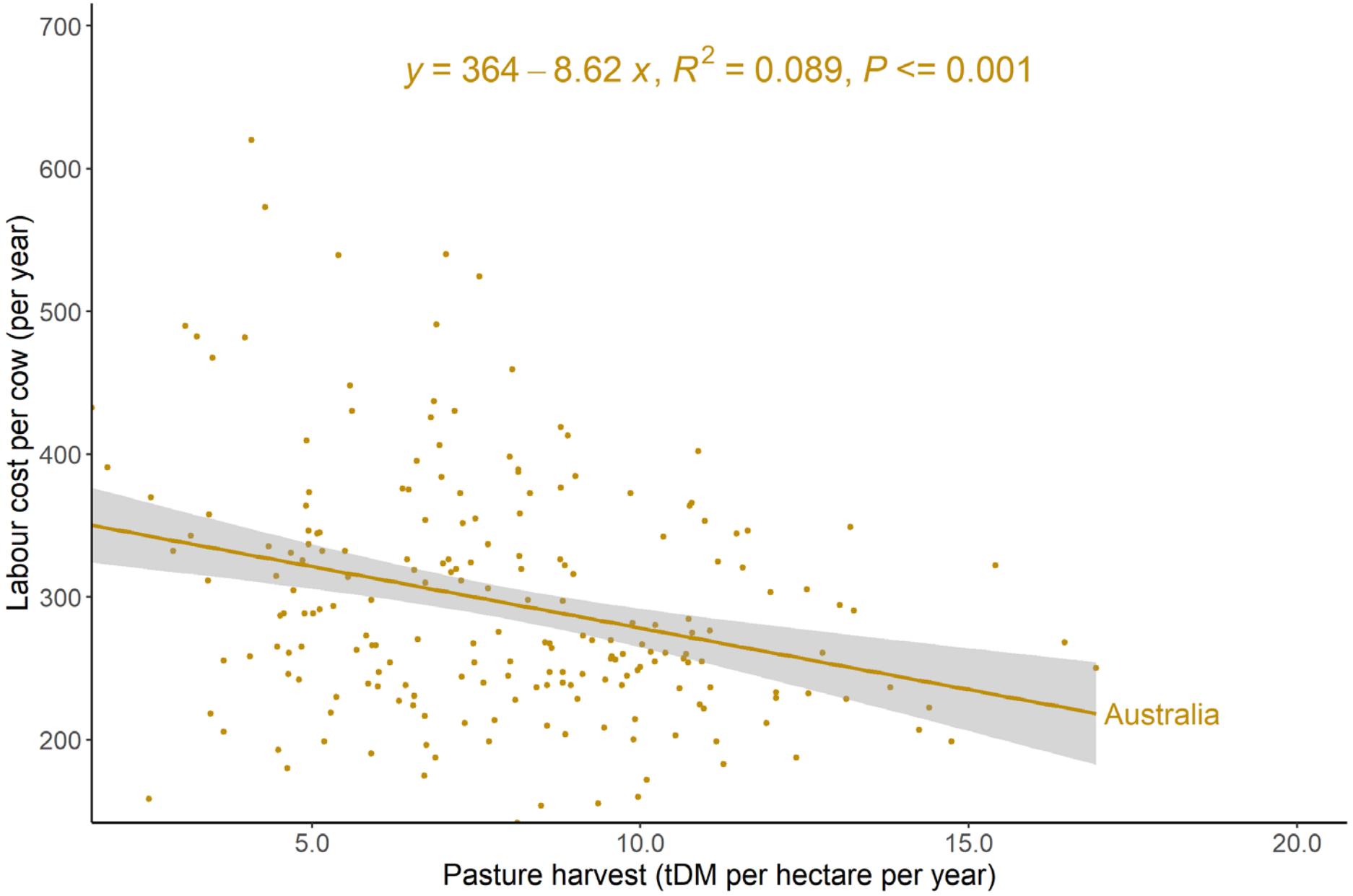
Impact of pasture percent in diet on profit

As pasture as per cent of cows' diet DECREASES	Change	R^2	P
Return on Capital (PROFIT)	**Decreases**	**0.08**	**<= 0.001**
Cost of production per litre	**Increases**	**0.16**	**<= 0.001**
Pasture consumed per cow	Decreases	0.68	<= 0.001
Supplement cost per litre	Increases	0.58	<= 0.001
Total feed cost per litre	Increases	0.50	<= 0.001
Core per hectare cost per tDM of pasture harvest	Increases	0.49	<= 0.001
Pasture cost per tonne dry matter	Increases	0.26	<= 0.001
Core per cow cost	Increases	0.09	<= 0.001
Labour cost per cow	Increases	0.08	<= 0.001
Pasture harvest	**Decreases**	**0.10**	**<= 0.001**

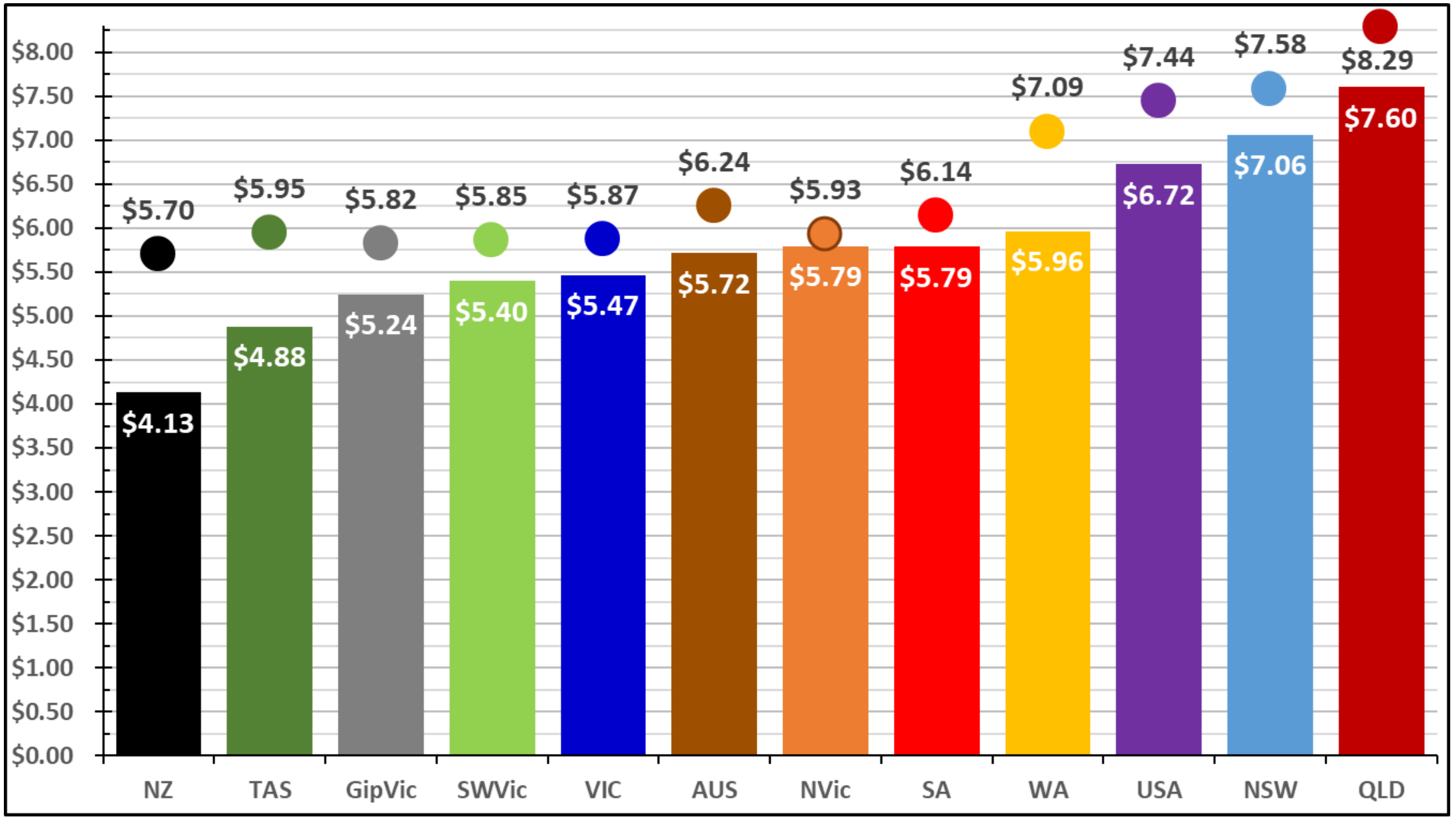
Pasture per cent in cows' diet impact on labour cost per cow (USD)



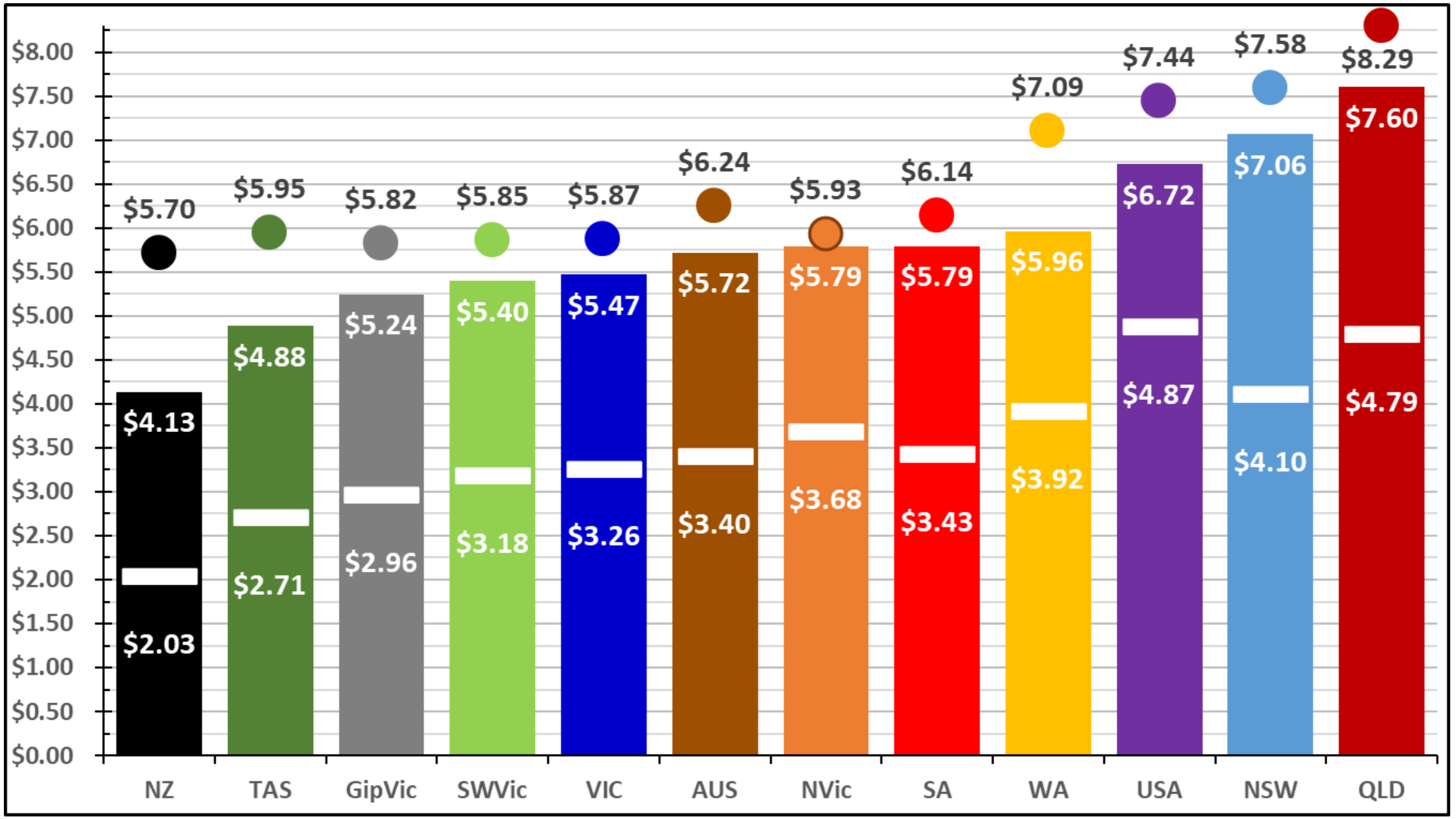
Pasture harvest impact on labour cost per cow (USD)



Cost of production [column] vs Milk price [dot] (AUD per kgMS 2015-2020)



Cost of production [column] and Total feed cost [dash] vs Milk price [dot] (AUD per kgMS 2015-2020)



Summary

1. A change in production system to higher levels of pasture in the diet provides the only substantial option for improving profit in Australian dairy
2. High levels of pasture harvest are important BUT equally a high percent of pasture is important to deliver a low average cost of feed
3. The reduction in percent pasture in the diet over the last 20-25 years has been the reason for the industry's loss in profitability
4. If this is reversed then profitability can be recovered along with international competitiveness and domestic comparative advantage
5. Major challenges include managing the transition and breeding the type of cow that thrives on a high pasture diet
6. …but the prize, of a stable, profitable industry, would be worthwhile!

Thank you