

Dairy Farm Monitor Project

Inland NSW and Northern Victoria
Total Mixed Ration (TMR) feeding systems

2024-25

Acknowledgements

Thank you to the farmer participants who generously supplied their data for this project.

Project participants should not be viewed to represent the entire dairy population.

Industry partners

The project was made possible by funding and support from Agriculture Victoria, Dairy Australia, NSW Department of Primary Industries (NSW DPIRD) and Regional Development and DairyUP.

Contributor/data collectors

The report has been made possible through contributions from Tom Farran and Cameron Smith (Farmanco), Brian Crockart (Agribusiness Solutions) and Fiona Smith (F.Smith Agribusiness Consulting).

Technical input to the greenhouse gas emissions estimates was provided by Karen Christie-Whitehead (UTAS) and the climate emissions teams from Agriculture Victoria, NSW DPIRD and Dairy Australia.

Appendix tables

The appendices at the end of this report provide detailed metrics on the historical physical and financial performance and efficiency for the average of the project participants.

Further information

Claire Waterman

Agriculture Victoria

claire.waterman@agriculture.vic.gov.au

Sheena Carter

NSW DPIRD

sheena.carter@dpird.nsw.gov.au

Disclaimer

The content of this publication is provided for general information only and has not been prepared to address your specific circumstances. We do not guarantee the completeness, accuracy or timeliness of the information.

Acknowledgement

Dairy Australia acknowledges the funding from levy payers and contribution by Commonwealth Government.

© Dairy Australia Limited 2026. All rights reserved.

ISBN 978-1-922529-74-9

Contents

Summary	2
About the study	4
Farm performance analysis	5
Physical performance	5
Profitability	7
Preliminary greenhouse gas emissions estimates	10
Appendix	13
References	28

Summary

The Australian dairy industry continues to evolve in response to climate change, among other drivers, and the range of production systems being used on farms has diversified.

Along with the traditional grazing-based dairy system, the level of interest in, and adoption of, more intensive production systems has increased. These more-intensive production systems are zero-grazing, where the milking herd is fed a total mixed ration (TMR) and generally involves significant investment in cattle feeding and housing infrastructure. For the purposes of this report, these farms are referred to as TMR farms.

Over the nine-year analysis period, many of the TMR farms transitioned to a contained housing system from less-intensive grazing-based systems, and the transition has required a significant capital investment and resulted in a changing risk profile. All TMR farm participants have now had at least three years operating the more-intensive production system and, many of the initial transition and implementation challenges are likely to have been addressed. The combined total milk production of the TMR farms in their respective regions provides insights into their contribution to dairying. The six inland NSW TMR farms produced 21% of total milk production in the inland/central NSW dairy region, while the eight Northern Victoria TMR farms produced 6% of total milk output in the Northern Victoria dairy region (Dairy Australia Milk Production Reports 2024-25).

Building on the previous longitudinal study (**Dairy Farm Monitor Project NSW/VIC – Total Mixed Ration Feeding System, 2025**), this report adds the 2024-25 financial year. The information can be used to help improve planning and decision-making of dairy farmers considering or operating TMR production systems.

Key points

The dataset has been extended to 2024-25, providing a nine-year record of average TMR farm profit and production performance.

Average farm profits decreased for both the TMR farm group and grazing DFMP farm group in 2024-25 compared to the previous year, mostly due to cost pressures accessing feed, but were among the highest performing years.

The TMR farms had different cost structures to grazing DFMP farms, which were being managed to maintain profitability. These were in the areas of feed supply, overhead costs, and financial exposure.

The range in performance highlighted the importance of management capability in any feeding system.

Profit and production performance

Across the analysis period, on average the TMR farms were characterised by larger milking herd size and heavier cows contributing to their greater total milk production and per-cow milk production than their grazing Dairy Farm Monitor Project (DFMP) counterparts. Most TMR participants grew their herd size and total milk output, coinciding with their transition to an intensive production system.

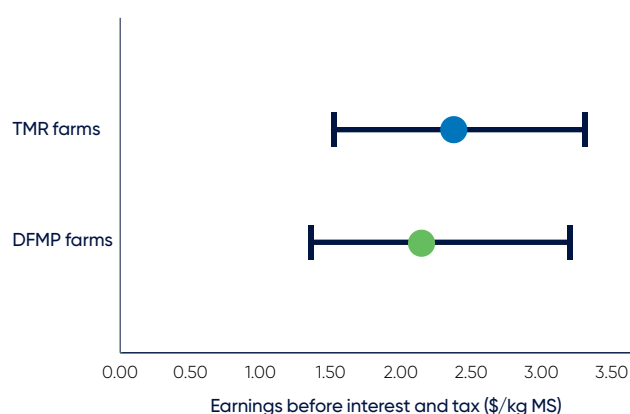
In 2024-25, average profit (earnings before interest and tax per kilogram of milk solids, kg MS) on TMR farms eased (down 12% from the previous year) but was the third highest result in the nine-year analysis period. Results varied within the farm groups, reinforcing that profitability depends on whole farm management (including labour efficiency, herd performance and market conditions), not the feeding system alone (Figure 1).

The transition to TMR feeding systems has changed the cost structures and presented new areas to manage. The TMR farms have achieved greater input efficiency, as shown by their higher milk production per cow than grazing DFMP farms. However, the TMR farms have incurred higher costs which they have identified and are managing to maintain profitability.

Difference in financial metrics (\$/kg MS) between the TMR farms and grazing DFMP farms in 2024-25:

- **11% higher income** – Higher gross farm income for the TMR farms was underpinned by a strong and stable milk price and higher contributions from other income sources.
- **11% higher feed costs** – TMR farms have maintained around 50% of their diet from homegrown feed sources in the last four years. This has kept the relative contribution of purchased and homegrown feed costs similar to grazing DFMP farms despite the total feed costs being higher for TMR farms, compared with grazing DFMP farms.
- **5% lower labour cost** – Employed labour dominated labour costs on TMR farms (89% versus 60%), with higher total labour demand but slightly lower overall labour costs due to stronger labour efficiency compared to grazing DFMP farms.
- **55% higher depreciation** – The TMR farms invested in a greater proportion of depreciating assets, such as housing infrastructure and machinery which contributed to their higher depreciation costs compared to grazing DFMP farms.
- **32% higher repairs and maintenance** – More capital for cattle housing infrastructure and plant and equipment on the TMR farms required more repairs and maintenance.
- **14% higher interest and lease costs** – Greater borrowings on the TMR farms have contributed to higher finance costs, compared to grazing DFMP farms.

Figure 1 2024-25 average (dot) and range (bars) of earnings before interest and tax per kilogram milk solids for the TMR farms and grazing DFMP farms



Preliminary greenhouse gas emissions estimates

Greenhouse gas (GHG) emissions and sequestration estimates were reported for a small sample of TMR farms, providing useful context for the assumptions used to calculate dairy farm emissions. The results can help identify practical emission reduction options that are relevant to TMR production systems. As the analysis is based on a limited number of farms, the average results should not be interpreted as representative of the wider dairy industry.

In 2024-25, the average carbon footprint for participating TMR farms was around 14,000 tonnes of carbon dioxide equivalent (t CO₂-e) per farm, with wide variation driven by differences in herd size, milk production, and manure management systems. The TMR farms had higher greenhouse gas emissions intensity estimated by kilogram of carbon dioxide equivalent per kilogram of fat and protein corrected milk (kg CO₂-e/kg FPCM), than grazing DFMP farms, which was largely driven by a greater contribution from manure management.

About the study

This study provides the dairy industry with detailed information to improve the understanding of TMR farm performance and for dairy farmers to support the transition of their production system to a TMR production system.

Building on the previous **study (2025)**, this report contributes a further year of baseline data for TMR farms across inland NSW and Northern Victoria. Farm data was collected using the Dairy Farm Monitor Project (DFMP) input spreadsheets, which provide a standardised method for evaluating dairy farm performance in Australia.

In 2024-25, a total of 14 TMR dairy farms participated – six in inland NSW and eight in Northern Victoria. Not all TMR farms participated each year. One new farm in Northern Victoria was replaced in 2024-25, with the remaining 13 farms participating in the last two years. The TMR farms operated a range of contained facilities (freestall, loose housing and dairy dry lots) and had all finished their transition to zero-grazing by 2022-23. Previous research demonstrated that several years were needed to capture the advantages of new technologies or practices on farm business performance.

Ho et al. (2012) found that the lag between the timing of the investment and reaping its benefits was an important consideration for an individual farm manager. As most of the farms were within the first few years of operating their new TMR production system, they were likely to have found, and will continue to find, efficiencies and manage risks while navigating changes in their operating environment.

The performance of TMR farms was compared to their grazing DFMP counterparts for the relevant years and regions. Not all grazing DFMP farms participated each year. These farms directly grazed pasture or fodder crops as part of the lactating herd's diet providing a comparison with the zero-grazing TMR farms. Table 1 describes the different groups referred to in this project.

Average values are presented for all metrics, consistent with the way data is presented in the DFMP. The range is presented in brackets where possible and represents the middle 50% of the dataset; or quartile one to quartile three. Dollar values are presented in real (adjusted for inflation) and nominal (unadjusted) where possible. Real dollar values are the nominal values converted to 2024-25 dollar equivalents by the consumer price index (CPI) to exclude the effects of inflation.

Table 1 Description of the different farm groups

Group name	Number of farms in 2024-25	Description
TMR	14	Combined TMR farms; six inland NSW TMR farms plus eight Northern Victoria TMR farms.
Inland NSW TMR		Dairy farms feeding a TMR, located in inland NSW.
Nth Vic TMR		Dairy farms feeding a TMR, located in the northern irrigation district of Victoria.
DFMP	29	Participants from Northern Victoria DFMP and inland NSW DFMP groups.
Inland NSW DFMP		Grazing participants in the NSW DFMP who were inland within the Southern NSW DFMP region, excluding TMR and coastal farms.
Nth Vic DFMP		Grazing participants in the Victorian DFMP who were in Northern Victoria (northern irrigation district), excluding TMR and north-east Victoria farms.

Farm performance analysis

Physical performance

Herd size and milk production

The TMR farms were larger than the grazing DFMP farms in 2024-25, as measured by usable area and herd size (Table 2). Moving to a zero-grazing system has been associated with growing herd numbers and increasing feed intake per cow which contributed to the increasing total and per cow milk production for nearly all TMR farms.

Most of the TMR farms achieved between 700 and 800 kg MS/cow in 2024-25, with average liveweight of milking cows and cow efficiency increasing across the analysis period supporting the higher per cow milk production.

Table 2 2024-25 average and range (quartile 1 to quartile 3) of physical performance for the different farm groups

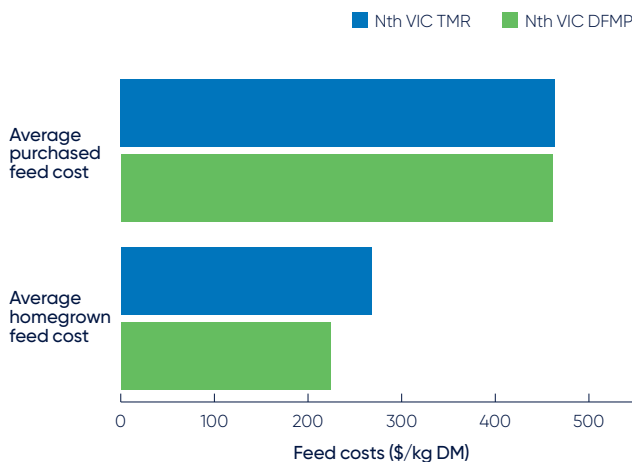
Farm group	Total usable area	No. of milkers	Milk sold	Homegrown feed as % of ME consumed	Labour efficiency	Concentrate price
	ha	head	kg MS/cow	%	kg MS/labour unit	\$/t DM
TMR	829 (529 to 1,072)	1,026 (767 to 1,179)	750 (695 to 803)	49 (34 to 58)	63,647 (53,525 to 67,963)	550 (504 to 552)
Inland NSW TMR	695 (474 to 877)	904 (708 to 1,178)	740 (658 to 797)	47 (39 to 58)	66,874 (61,767 to 70,100)	521 (507 to 532)
Nth Vic TMR	930 (642 to 1,122)	1,118 (782 to 1,121)	757 (716 to 801)	51 (32 to 58)	61,227 (52,281 to 65,816)	572 (503 to 597)
DFMP	348 (138 to 413)	511 (275 to 650)	599 (536 to 644)	54 (45 to 67)	61,891 (52,027 to 72,136)	531 (482 to 588)
Inland NSW DFMP	679 (367 to 748)	858 (400 to 1,250)	633 (579 to 721)	61 (45 to 76)	58,692 (41,82 to 68,589)	519 (469 to 575)
Nth Vic DFMP	279 (135 to 362)	439 (271 to 598)	591 (535 to 641)	53 (41 to 64)	62,557 (53,356 to 73,022)	533 (484 to 588)

Purchased and homegrown feed

The TMR farms sourced around half of their feed requirements from feed grown on their own farm (Table 2). They have kept the proportion of homegrown feed steady at around 50% of the diet over the last four years by investing in additional land and water while also increasing the average amount of feed grown per hectare. In 2024-25, the grazing DFMP farms sourced slightly more of their diet from homegrown feed than TMR farms (despite the average of the grazing DFMP farms homegrown feed decreasing to 54% of the diet due to dry conditions, down from 56% in the previous year).

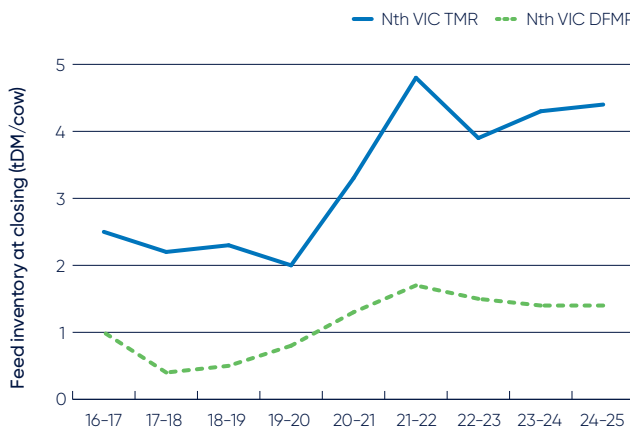
The TMR farms paid a higher average price for concentrates than grazing DFMP farms. While many TMR farms produced some grain or concentrate on-farm, they typically purchased higher-cost feed additives and protein meals, which increased the average concentrate price (\$/t DM). When all purchased feed costs were considered, the average cost per tonne was almost identical for the TMR and DFMP groups, as shown by the Northern Victoria farms in Figure 2. However, homegrown feed costs were around \$44/t DM lower for Northern Victoria grazing DFMP farms compared to Northern Victoria TMR farms. Feed values for inland NSW DFMP farms were not available for this report.

Figure 2 2024-25 average feed cash costs for Northern Victoria TMR and Northern Victoria grazing DFMP farms



Increasing on-farm fodder inventory is an area where some TMR farms were managing feed supply risks. In the early years of the analysis period, most TMR farms transitioned to a TMR production system and made investments to store larger quantities of feed inventory. Figure 3 shows years where Northern Victoria TMR farms were able to significantly increase their feed inventory (2021-22) and years they drew on their reserves (2022-23). In 2024-25, the Northern Victoria TMR farms had around 4.2 t DM/cow feed on hand at the end of the year which was similar to the previous year and was higher than 1.4 t DM/cow recorded on grazing Northern Victoria DFMP farms. Feed inventory data for inland NSW DFMP farms were not available for this report.

Figure 3 Average feed inventory at 30 June for the Northern Victoria TMR farms and Northern Victoria grazing DFMP farms



Profitability

Gross farm income

The TMR farms had higher average gross farm income than DFMP farms across the nine-year analysis period (Table 3). A characteristic of the TMR farms was a strong and stable milk price with many securing multi-year milk price contracts. While milk price decreased in 2024–25 for the second consecutive year for the TMR and DFMP farm groups, it remained high (third highest milk price in nine years adjusted for inflation).

Other sources of farm income were important on TMR farms. On average, other farm income sources contributed 11% to gross farm income, whereas it was 7% for grazing DFMP farms in 2024–25. Building herds through replacements and young stock, as well as sales of other livestock and feed, were some of the activities that contributed to the higher other farm income for TMR farms. While these other farm activities generated additional income for the business, they also generated additional costs but not necessarily higher profits for individual farms.

Variable and overhead costs

The TMR farms achieved greater efficiency from their inputs, as demonstrated by the higher milk production per cow (Table 2). Not only were their herds bigger, but the cows also increased their liveweight (cows were heavier), and had higher cow efficiency, helping to achieve higher milk production per cow compared to grazing DFMP farms. However, the TMR farms had higher average costs in 2024–25 in dollars per kilogram milk solids (\$/kg MS) (Table 3). The TMR farms were able to manage these higher costs, and changing cost structures, to maintain profitability.

Within the variable cost categories in 2024–25, the TMR farms spent an additional \$0.54/kg MS on feed costs compared to grazing DFMP farms (which was an 11% increase from 2023/24). The TMR farms kept the relative proportion of homegrown feed in the diet similar in recent years around 50%, and this has kept the mix of variable costs identical to grazing DFMP farms; two-thirds purchased feed costs, one-third homegrown feed costs and less than 5% on feed and water inventory change. However, the TMR farms spent more on total feed costs indicating the higher milk production per cow was associated with increased costs. Any future increases in total milk production, at similar total costs, will dilute these costs per kilogram milk solids.

Within the overhead cost categories in 2024–25, the TMR farms had higher average expenditure than the grazing DFMP farms in the areas of employed labour, depreciation and expenditure on repairs and maintenance (Figure 4).

Employed labour was a key difference in costs between the TMR and grazing DFMP farm groups. In 2024–25, TMR farms had higher employed labour costs than grazing DFMP farms, with employed labour accounting for 89% of total labour costs on TMR farms compared to 60% on grazing DFMP farms. Despite this, when combining both cash (employed) and non-cash (imputed) costs for labour, total labour costs on TMR farms were 5% lower than grazing DFMP farms. This reflects the stronger labour efficiency in terms of kilograms of milk solids per full time equivalent (kg MS/FTE). TMR farms also required more total labour overall due to their larger scale and more complex operations, averaging 12 FTE compared to 5 FTE on grazing farms.

Table 3 2024–25 average and range (quartile 1 to quartile 3) of financial performance for the different farm groups

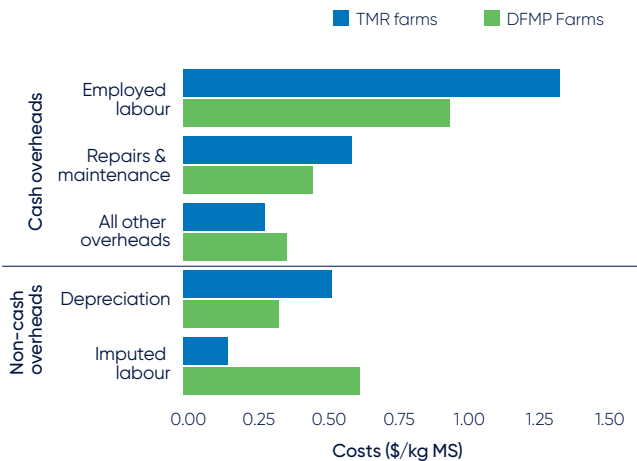
Farm group	Gross farm income	Variable costs	Overhead costs	Earnings before interest and tax	Return on total assets	Net farm income	Return on equity
	\$/kg MS	\$/kg MS	\$/kg MS	\$/kg MS	%	\$/kg MS	%
TMR	11.32 (10.70 to 11.34)	6.03 (5.42 to 6.52)	2.92 (2.75 to 3.28)	2.37 (1.52 to 3.30)	7.6 (4.5 to 10.2)	1.56 (0.82 to 2.62)	8.7 (4.7 to 13)
Inland NSW TMR	11.40 (10.50 to 11.62)	5.60 (5.03 to 5.67)	2.76 (2.46 to 3.28)	3.03 (2.49 to 3.54)	9.5 (6.8 to 13.3)	2.05 (1.41 to 2.84)	11.7 (6.4 to 17.9)
Nth Vic TMR	11.27 (10.83 to 11.29)	6.35 (6.23 to 6.63)	3.04 (2.81 to 3.09)	1.87 (1.47 to 2.05)	6.2 (4.3 to 7.4)	1.19 (0.73 to 1.40)	6.4 (4.1 to 8.4)
DFMP	10.23 (9.44 to 10.91)	5.37 (4.61 to 6.20)	2.72 (2.31 to 3.02)	2.14 (1.36 to 3.21)	6.0 (3.8 to 7.7)	1.43 (0.65 to 2.53)	6.0 (1.8 to 9.3)
Inland NSW DFMP	10.97 (9.93 to 12.28)	5.51 (4.82 to 6.44)	3.20 (2.87 to 3.65)	2.27 (1.97 to 3.23)	6.9 (3.8 to 8.6)	1.80 (1.55 to 2.26)	7.1 (3.5 to 9.3)
Nth Vic DFMP	10.07 (9.43 to 10.80)	5.35 (4.60 to 6.07)	2.62 (2.24 to 2.78)	2.11 (1.31 to 3.01)	5.9 (3.8 to 7.4)	1.35 (0.46 to 2.60)	5.7 (1.3 to 8.0)

Depreciation costs were 55% higher for TMR farms than grazing DFMP farms in 2024-25 per kilogram of milk solids. The TMR farms have invested in a greater proportion of depreciating assets, such as housing infrastructure and machinery, as a portion of their total owned assets. TMR farms had around 40% of their assets invested in depreciable assets, compared to Northern Victorian grazing DFMP farms around 30%. This portion of their asset base will not be subject to capital appreciation, noting that the real estate market has not truly been tested for these facilities in Australia.

The higher capital requirement for cattle housing infrastructure and plant and equipment for mixing, growing and harvesting feeds, as well as bedding and other shed maintenance, has added to the 32% higher R&M costs for TMR farms compared to grazing DFMP farms.

Differences in variable and overhead costs for the TMR groups between years were primarily driven by seasonal conditions and how farms managed feed and resource use across regions. The TMR farms had a 5% decrease in variable and overhead costs per kilogram of milk in 2024-25 compared to the previous year, driven by lower expenditure by the inland NSW TMR farms (Table 3). The inland NSW TMR farms efficiently used their resources, in what was a dry year, helping them to lower homegrown costs (with the exception of irrigation costs). This combined with building feed reserves and tight cost control across other categories lowered variable and overhead costs to \$8.36/kg MS in 2024-25. The Northern Victoria TMR farms had similar variable and overhead costs between years, recording \$9.39/kg MS in 2024-25. For the Northern Victoria TMR farms, the dry conditions resulted in farms drawing down their feed reserves (increasing costs) which reduced expenditure on purchased feed, resulting in similar costs between years.

Figure 4. 2024-25 average overheads costs (\$/kg MS) for the TMR farms and DFMP farms



Profit and returns

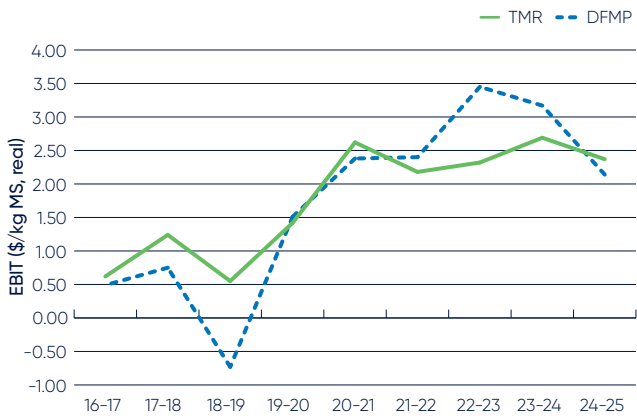
In 2024-25, average profit (earnings before interest and tax) per kg MS for the TMR farms decreased by 12% from the previous year but was the third highest in the nine-year analysis period (Figure 5). This strong average profit performance for the TMR farms was also observed by the reduced year-to-year variability in profit. In recent years (2020-21 to 2024-25) average profits for the TMR farms fluctuated less than earlier years of the analysis period (2016-17 to 2019-20). The high and more stable average profits for the TMR farms in recent years suggests this cohort of farms have lowered their business risk.

The higher profits on the TMR farms than the grazing DFMP farms in 2024-25 were supported by the strong performance of the inland NSW TMR farms, which combined high milk income with tight cost control. In a dry year, inland NSW TMR farms used irrigation water to minimise fodder purchases and build feed inventory, helping lower costs compared to the Northern Victoria TMR farms.

Average returns on total assets and return on equity were higher for the TMR farms than grazing DFMP farms in 2024-25. The slightly higher profit per kilogram milk solids (EBIT and net farm income) for the TMR farms, relative to their capital base (assets and equity respectively), resulted in higher returns.

All groups showed a range in performance, meaning not all farms within a group performed equally well. Some farms in the TMR and grazing DFMP groups achieved high returns, indicating strong financial performance. The feeding system alone did not determine profitability. Other factors – like management practices, herd health, labour efficiency, and market conditions – also played a major role.

Figure 5 Average earnings before interest and tax for the TMR and DFMP farms

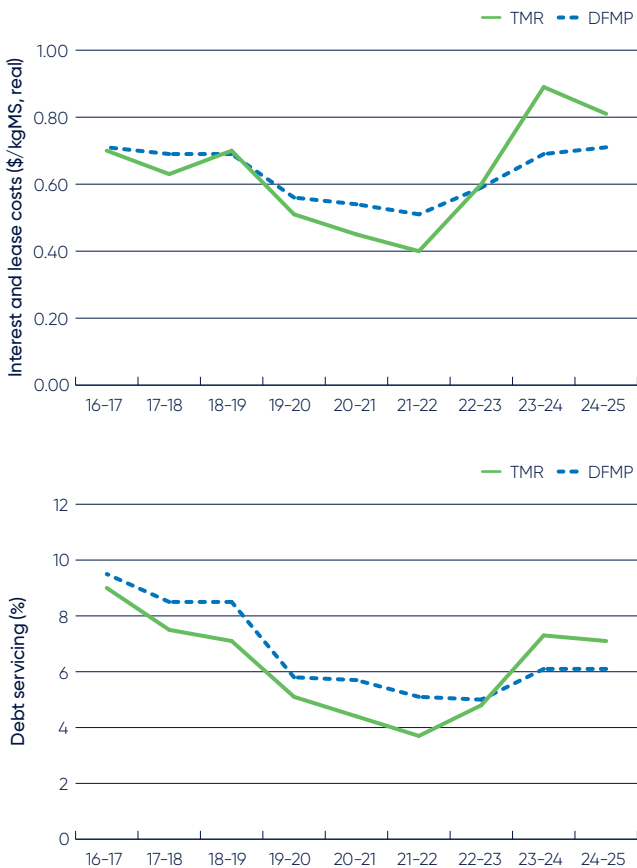


Interest and lease costs

Average interest and lease costs for the TMR farms remained above the grazing DFMP farm in 2024-25, despite decreasing by 9% from the previous year. Interest and lease costs for the same participating farms decreased by 6% over the same period. While some TMR farms continued to make capital purchases for land, buildings and infrastructure, partially funded by borrowings, it was not to the same extent as earlier years when many made their transition to a housed facility. Other TMR farms consolidated debt which contributed to the lower average interest and lease costs in 2024-25 (Figure 6).

The proportion of gross farm income absorbed by interest and lease costs (or debt servicing ratio) was 7.1% on TMR farms in 2024-25, similar to the previous year. Debt servicing ratio for the DFMP farms was 6.1% in the last two years. Over the analysis period, the impact of rising interest and lease costs can be observed on farm profitability, especially for those farms who have used borrowings to fund capital investments.

Figure 6 Average interest and lease costs (top figure) and debt servicing (bottom figure) for the TMR and DFMP farms

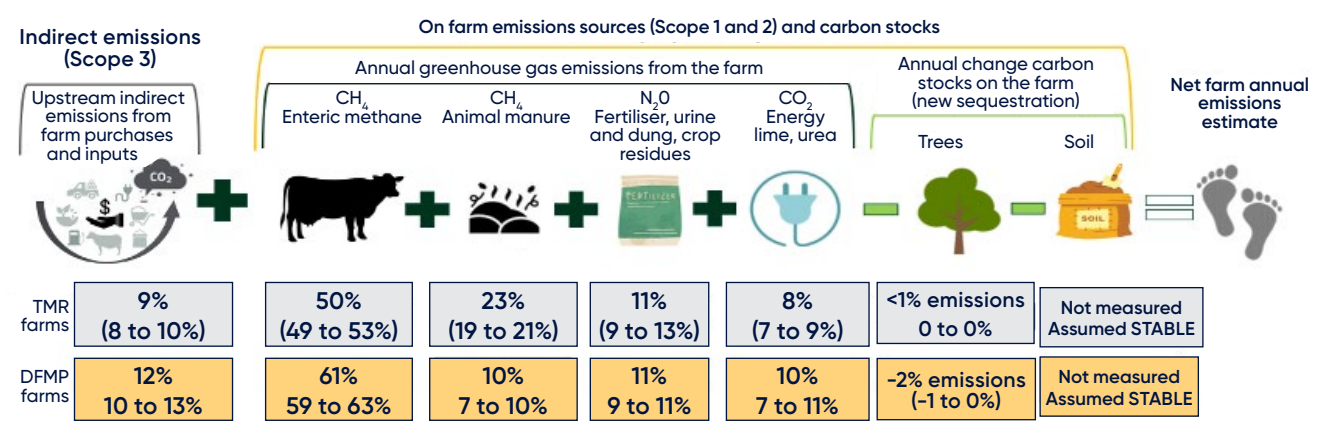


Preliminary greenhouse gas emissions estimates

The main agricultural greenhouse gas (GHG) emissions are carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). The Australian Dairy Carbon Calculator (ADCC) Manual (2025) provides descriptions of GHG emissions and their relative impacts. Net annual farm emissions take into consideration the emissions generated from activities conducted on the farm (referred to as Scope 1), emissions resulting from the production of energy (electricity and fuel) the farm uses (Scope 2), embedded emissions created in manufacturing or production of products the farm buys (Scope 3), and the annual change in carbon stocks for trees (Figure 7).

The ADCC was used to estimate Scope 1, 2 and 3 emissions for all participant farms including the total mixed ration (TMR) and Dairy Farm Monitor Project (DFMP) farms. The underlying assumptions of the ADCC are based on a typical farm and international/national GHG accounting methods, so are not always sensitive enough to reflect the varying on-farm practices of individual farms. Emissions calculators and emissions factors are constantly being refined and updated as new science and/or guidance becomes available. Due to the size and nature of the dataset, the results should not be taken as representative of the dairy industry.

Figure 7 The sources and types of farm emissions for TMR farms, adapted from Agriculture Victoria’s On-Farm Emission Action Plan Pilot. Percentages reflect averages and range from 2024-25 financial year for the for the TMR and DFMP farms.



Average is represented on the top line and range (quartile 1 to quartile 3) represented in brackets. Tree percentages have been rounded.

Group comparison

The TMR farm groups had higher average net emissions and emissions intensity (EI) in 2024–25 compared to the pasture grazing DFMP farm groups (Table 4). The larger herd sizes, higher milk production and more emissions from manure management sources on the TMR farms contributed to the higher average net emissions. By their very nature, TMR farms will generate larger total enteric methane volumes due to their larger herd sizes.

Greater deposits and collection of manure for TMR farms (compared to grazing DFMP farms where most manure is deposited onto pastures), resulted in greater manure-derived emissions. In TMR systems, manure is collected at single point sources (the milking shed, loafing area and/or feedpad) and treatment of manure streams are under a higher degree of control in comparison to pasture grazing based systems. In grazing based systems, a large portion of manure is deposited in the paddocks decomposing under aerobic conditions, and effluent is mostly collected and managed at the milking shed.

Decomposing manure under anaerobic conditions (i.e. in the absence of oxygen) during storage and treatment has a higher emissions factor for methane than manure deposited in the paddock. The larger portion of manure able to be captured in TMR systems contributed to higher EI for the TMR farms.

There was a wide range in GHG emissions estimates that exist on all farms and in all farm groups reflecting the diversity in farming practices and production systems among participant farms. The fourth edition **National Guidelines Dairy Feedpads and Contained Housing (2024)** provide recommended management practices suited to TMR farms and identify management options to reduce anaerobic digestion of manure solids.

Table 4 2024–25 average and range (quartile 1 to quartile 3) of net emissions and emissions intensity (EI) measures for the different farm groups

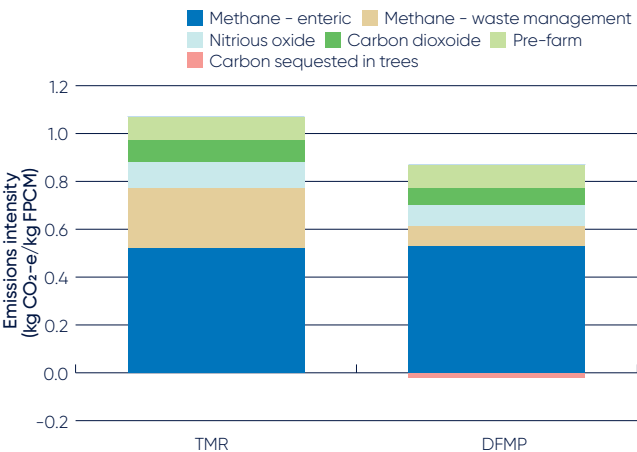
Farm group	Net emissions	EI - milk	EI - milk	EI - meat
	t CO ₂ -e/farm	kg CO ₂ -e/kg MS	kg CO ₂ -e/kg FPCM	kg CO ₂ -e/kg lwt
TMR	13,741 (10,139 to 14,778)	15.0 (13.9 to 14.8)	1.1 (1 to 1.1)	6.4 (5.2 to 8.3)
Inland NSW TMR	12,193 (7,528 to 15,904)	15.3 (13.9 to 14.7)	1.1 (1 to 1.1)	6.8 (5.1 to 8.5)
Nth Vic TMR	14,902 (10,445 to 15,629)	14.9 (13.9 to 15.2)	1.1 (1 to 1.1)	6.2 (5.4 to 6.6)
DFMP	4,219 (2,107 to 5,159)	12 (11.4 to 12.9)	1.0 (0.8 to 0.9)	5.0 (4.2 to 5)
Inland NSW DFMP	7,641 (2,918 to 13,287)	12.6 (12.3 to 13.4)	0.9 (0.9 to 1)	4.9 (4.6 to 5.5)
Nth Vic DFMP	3,506 (2,068 to 4,920)	11.9 (11.3 to 12.7)	0.9 (0.8 to 0.9)	4.5 (4.1 to 4.9)

Emissions intensity

The breakdown of emissions sources for the TMR and grazing DFMP is shown in Figure 8. The higher methane emissions from the capture and storage of manure (anaerobic ponds and stockpiles) compared to manure deposited on pasture on a per kilogram basis were the main contributor to the higher average EI in kilograms of carbon dioxide equivalents per kilogram of fat and protein corrected milk (kg CO₂-e/kg FPCM) for the TMR farms compared to the grazing DFMP farms. The TMR farms also had higher CO₂ emissions (26% higher than DFMP farms), likely associated with housing infrastructure. The emissions from the other sources were similar. Tree sequestration contributed less than 1% to net emissions for TMR farms and around 2% for grazing based DFMP farms, on average. Farms in the Inland NSW TMR group, with a larger livestock trading component of their businesses, contributed to the higher emissions intensity for meat compared to Northern Victoria DFMP farms.

The EI measures for milk production (kg CO₂-e/kg MS and kg CO₂-e/kg FPCM) are based on allocating a proportion of emissions to milk production then dividing by either kilogram of milk solids (kg MS) or kilograms of fat and protein-corrected milk (kg FPCM). Emissions intensity for meat production is based on allocating a proportion of net emissions (kilograms) to meat production and dividing by total kilograms of liveweight sold (kg lwt). The percentage of net emissions allocated to milk was approximately 90% for all groups.

Figure 8 Average emissions intensity (kg CO₂-e/kg FPCM) in 2024-25 for the TMR farms and grazing DFMP farms



Emissions abatement actions

The TMR farms selected areas of emissions abatement they had employed on farm, from a list of 17 actions, during the data collection phase of the project. All TMR farms adopted at least five actions with two in common; feeding a high fat dietary supplement and actively balancing the energy to protein ratio of the milking herd's diet. Other common actions included renewable energy generation, extended lactation and strategic use of nitrogen fertiliser. These actions were reflected in the individual farm profiles for 2024-25.

GHG emissions summary

The GHG emissions estimates for this cohort of TMR farms can help inform and refine the assumptions used to estimate dairy farm emissions for TMR production systems. The results also highlight the importance of investigation of practical emissions reduction options relevant to these systems. These findings are preliminary and should not be interpreted as representative of the wider dairy industry.

In 2024-25, the average carbon footprint for the TMR farms was 14,000 tonnes of carbon dioxide equivalent (t CO₂-e). There was a wide variation recorded among participating farms reflecting the range in herd sizes, milk production and manure management associated with the different contained housing and feeding system facilities. Differences in emissions intensity (EI) between zero-grazing TMR farms and grazing DFMP farms were largely driven by the higher contribution of emissions from manure management on TMR farms. Continued monitoring and data collection will strengthen understanding of the factors influencing GHG emissions on TMR farms and help inform practical mitigation options and progress toward the Australian Dairy Sustainability Framework targets.

Appendix

Table A1
TMR farms – average farm income, costs
and profit per kilogram of milk solids 14

Table B1
TMR farms – average farm
physical information 15

Table A2
Inland NSW TMR farms – average farm
income, costs and profit per kilogram of
milk solids 16

Table B2
Inland NSW TMR farms – average farm
physical information 17

Table A3
Northern Victoria TMR farms – average
farm income, costs and profit per kilogram
of milk solids 18

Table B3
Northern Victoria TMR farms – average farm
physical information 19

Table A4
DFMP farms – average farm income, costs
and profit per kilogram of milk solids 20

Table B4
DFMP farms – average farm
physical information 21

Table A5
Inland NSW DFMP farms – average farm
income, costs and profit per kilogram
of milk solids 22

Table B5
Inland NSW DFMP farms – average farm
physical information 23

Table A6
Northern Victoria DFMP farms – average
farm income, costs and profit per kilogram
of milk solids 24

Table B6
Northern Victoria DFMP farms – average
farm physical information 25

Table A1 TMR farms – average farm income, costs and profit per kilogram of milk solids

Income														
Year	Milk income net		All other farm income		Gross farm income									
	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS								
2016-17	5.50	6.87	0.72	0.90	6.22	7.77								
2017-18	5.99	7.36	0.84	1.04	6.84	8.39								
2018-19	7.00	8.48	1.04	1.26	8.04	9.74								
2019-20	7.54	9.01	1.08	1.29	8.62	10.30								
2020-21	7.67	9.03	1.15	1.36	8.82	10.39								
2021-22	7.99	9.01	1.79	2.02	9.77	11.02								
2022-23	10.10	10.81	1.55	1.65	11.65	12.46								
2023-24	10.35	10.63	1.43	1.47	11.79	12.11								
2024-25	10.11	10.11	1.21	1.21	11.32	11.32								

Variable costs														
Year	Herd and shed costs		Homegrown feed costs		Purchased feed costs		Feed and water inventory change		Total variable costs					
	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS				
2016-17	0.58	0.72	1.16	1.44	2.29	2.86	-0.54	-0.67	3.49	4.36				
2017-18	0.54	0.66	1.09	1.34	2.12	2.60	0.04	0.05	3.79	4.65				
2018-19	0.53	0.64	1.76	2.13	2.96	3.59	0.01	0.01	5.26	6.36				
2019-20	0.60	0.72	1.13	1.34	3.63	4.34	-0.18	-0.22	5.18	6.19				
2020-21	0.60	0.71	1.45	1.70	2.85	3.35	-0.68	-0.80	4.21	4.96				
2021-22	0.70	0.79	1.64	1.85	3.16	3.56	-0.51	-0.57	4.98	5.62				
2022-23	0.75	0.80	1.82	1.95	3.46	3.70	0.27	0.29	6.30	6.74				
2023-24	0.71	0.73	2.17	2.23	3.74	3.84	-0.56	-0.58	6.06	6.22				
2024-25	0.63	0.63	1.94	1.94	3.57	3.57	-0.11	-0.11	6.03	6.03				

Overhead costs							Profit							
Year	Cash overhead costs		Non-cash overhead costs		Total overhead costs		Earnings before interest and tax		Interest and lease costs		Net farm income		RoTA %	RoE %
	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS		
2016-17	1.55	1.94	0.68	0.85	2.24	2.79	0.50	0.62	0.56	0.70	-0.06	-0.08	2.0	-0.3
2017-18	1.40	1.72	0.64	0.79	2.04	2.51	1.01	1.24	0.51	0.63	0.49	0.60	4.8	5.1
2018-19	1.62	1.96	0.71	0.86	2.33	2.83	0.45	0.55	0.58	0.70	-0.13	-0.15	2.4	0.9
2019-20	1.64	1.96	0.61	0.73	2.25	2.69	1.19	1.42	0.43	0.51	0.76	0.91	5.5	6.2
2020-21	1.77	2.09	0.62	0.73	2.39	2.82	2.22	2.62	0.38	0.45	1.84	2.17	8.7	12.0
2021-22	2.07	2.34	0.78	0.88	2.85	3.22	1.94	2.18	0.36	0.40	1.58	1.78	6.1	7.6
2022-23	2.36	2.52	0.83	0.88	3.18	3.41	2.16	2.32	0.56	0.60	1.61	1.72	7.5	9.5
2023-24	2.32	2.38	0.79	0.81	3.11	3.19	2.62	2.69	0.86	0.89	1.75	1.80	8.0	9.4
2024-25	2.23	2.23	0.69	0.69	2.92	2.92	2.37	2.37	0.81	0.81	1.56	1.56	7.6	8.7

Note: 'Real' dollar values are the nominal values converted to 2024-25 dollar equivalents by the consumer price index (CPI) to allow for inflation.

Table B1 TMR farms – average farm physical information

	Total usable area	Number of milkers	Milk sold	Homegrown feed as % of ME consumed	Water use efficiency	Labour efficiency	Concentrate price	Concentrate price
Year	ha	head	kg MS/cow	%	t DM/100mm/ha	kg MS/labour unit	Nominal (\$/t DM)	Real (\$/t DM)
2016-17	535	608	598	56	0.9	55,889	365	456
2017-18	547	665	636	53	1.0	61,791	368	452
2018-19	592	675	642	n/a	1.1	58,225	515	624
2019-20	601	726	662	n/a	0.9	59,735	477	570
2020-21	613	757	669	41	1.1	59,135	401	472
2021-22	625	776	657	48	1.0	58,585	453	511
2022-23	656	836	626	50	0.7	57,078	526	563
2023-24	849	1,042	698	52	1.0	57,799	533	547
2024-25	829	1,026	750	49	1.2	63,647	550	550

Table A2 Inland NSW TMR farms – average farm income, costs and profit per kilogram of milk solids

Income														
Year	Milk income net		All other farm income		Gross farm income									
	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS								
2016-17	6.23	7.79	1.28	1.60	7.52	9.40								
2017-18	6.27	7.70	0.64	0.79	6.91	8.49								
2018-19	7.50	9.09	1.26	1.53	8.77	10.61								
2019-20	8.21	9.81	1.48	1.77	9.69	11.58								
2020-21	8.41	9.90	1.46	1.72	9.87	11.62								
2021-22	8.55	9.64	1.92	2.17	10.47	11.81								
2022-23	10.62	11.37	1.56	1.67	12.18	13.04								
2023-24	10.70	10.99	1.11	1.14	11.81	12.13								
2024-25	10.37	10.37	1.02	1.02	11.40	11.40								

Variable costs														
Year	Herd and shed costs		Homegrown feed costs		Purchased feed costs		Feed and water inventory change		Total variable costs					
	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS				
2016-17	0.78	0.98	0.97	1.21	2.64	3.30	-0.19	-0.23	4.21	5.26				
2017-18	0.67	0.82	1.19	1.46	2.49	3.06	-0.19	-0.23	4.15	5.10				
2018-19	0.62	0.75	1.80	2.18	3.36	4.07	0.02	0.02	5.80	7.02				
2019-20	0.68	0.81	1.02	1.21	4.45	5.32	-0.29	-0.35	5.85	6.99				
2020-21	0.72	0.85	1.38	1.63	3.09	3.64	-0.68	-0.80	4.52	5.32				
2021-22	0.72	0.81	1.56	1.76	3.31	3.73	-0.45	-0.51	5.14	5.79				
2022-23	0.78	0.84	1.64	1.75	3.59	3.84	0.24	0.26	6.25	6.69				
2023-24	0.69	0.71	2.03	2.09	3.59	3.68	-0.33	-0.34	5.98	6.14				
2024-25	0.66	0.66	1.78	1.78	3.54	3.54	-0.38	-0.38	5.60	5.60				

Overhead costs							Profit							
Year	Cash overhead costs		Non-cash overhead costs		Total overhead costs		Earnings before interest and tax		Interest and lease costs		Net farm income		RoTA %	RoE %
	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS		
2016-17	1.62	2.02	0.88	1.10	2.49	3.11	0.82	1.03	0.68	0.85	0.14	0.18	3.0	1.4
2017-18	1.36	1.67	0.85	1.05	2.22	2.72	0.54	0.67	0.65	0.80	-0.11	-0.13	3.4	3.4
2018-19	1.80	2.17	1.04	1.26	2.84	3.44	0.12	0.15	0.77	0.93	-0.64	-0.78	1.6	0.0
2019-20	1.88	2.25	0.77	0.92	2.65	3.17	1.19	1.42	0.50	0.59	0.69	0.83	5.8	6.7
2020-21	2.08	2.45	0.78	0.92	2.86	3.37	2.49	2.94	0.40	0.48	2.09	2.46	8.8	11.8
2021-22	2.33	2.63	0.89	1.00	3.22	3.64	2.11	2.38	0.43	0.49	1.68	1.89	6.2	7.4
2022-23	2.30	2.46	0.81	0.87	3.11	3.33	2.83	3.02	0.67	0.72	2.15	2.31	8.7	11.8
2023-24	2.21	2.27	0.84	0.86	3.05	3.14	2.78	2.85	1.05	1.08	1.73	1.77	8.4	10.3
2024-25	2.00	2.00	0.77	0.77	2.76	2.76	3.03	3.03	0.98	0.98	2.05	2.05	9.5	11.7

Note: 'Real' dollar values are the nominal values converted to 2024-25 dollar equivalents by the consumer price index (CPI) to allow for inflation.

Table B2 Inland NSW TMR farms – average farm physical information

	Total usable area	Number of milkers	Milk sold	Homegrown feed as % of ME consumed	Water use efficiency	Labour efficiency	Concentrate price	Concentrate price
Year	ha	head	kg MS/cow	%	t DM/100mm/ha	kg MS/labour unit	Nominal (\$/t DM)	Real (\$/t DM)
2016-17	345	524	553	53	1.0	47,354	350	438
2017-18	416	575	565	54	1.0	51,968	349	429
2018-19	485	496	621	n/a	0.8	42,483	523	634
2019-20	496	578	653	n/a	0.8	47,764	492	587
2020-21	496	579	653	38	1.0	46,664	402	474
2021-22	523	595	645	45	1.0	46,203	455	513
2022-23	593	721	603	52	0.7	52,691	514	550
2023-24	683	762	689	51	1.0	56,930	539	554
2024-25	695	904	740	47	1.3	66,874	521	521

Table A3 Northern Victoria TMR farms – average farm income, costs and profit per kilogram of milk solids

Income						
	Milk income net		All other farm income		Gross farm income	
Year	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS
2016-17	5.31	6.64	0.58	0.73	5.89	7.37
2017-18	5.92	7.27	0.89	1.10	6.82	8.37
2018-19	6.72	8.13	0.91	1.10	7.63	9.24
2019-20	7.04	8.41	0.77	0.93	7.81	9.34
2020-21	7.11	8.37	0.93	1.09	8.04	9.46
2021-22	7.56	8.53	1.69	1.91	9.25	10.44
2022-23	9.71	10.39	1.54	1.64	11.24	12.03
2023-24	10.09	10.37	1.68	1.72	11.77	12.09
2024-25	9.92	9.92	1.35	1.35	11.27	11.27

Variable costs										
	Herd and shed costs		Homegrown feed costs		Purchased feed costs		Feed and water inventory change		Total variable costs	
Year	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS
2016-17	0.53	0.66	1.20	1.50	2.20	2.75	-0.63	-0.78	3.31	4.13
2017-18	0.51	0.62	1.06	1.31	2.03	2.49	0.10	0.12	3.70	4.54
2018-19	0.47	0.57	1.74	2.11	2.73	3.31	0.00	0.00	4.94	5.99
2019-20	0.54	0.65	1.21	1.44	3.02	3.61	-0.10	-0.12	4.67	5.58
2020-21	0.51	0.60	1.49	1.76	2.66	3.14	-0.68	-0.81	3.98	4.69
2021-22	0.69	0.77	1.69	1.91	3.04	3.43	-0.55	-0.62	4.87	5.49
2022-23	0.72	0.77	1.97	2.10	3.35	3.59	0.30	0.32	6.33	6.78
2023-24	0.73	0.75	2.27	2.34	3.85	3.96	-0.73	-0.75	6.12	6.29
2024-25	0.61	0.61	2.05	2.05	3.60	3.60	0.10	0.10	6.35	6.35

Overhead costs							Profit							
	Cash overhead costs		Non-cash overhead costs		Total overhead costs		Earnings before interest and tax		Interest and lease costs		Net farm income		RoTA	RoE
Year	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS		
2016-17	1.54	1.92	0.63	0.79	2.17	2.71	0.42	0.52	0.53	0.66	-0.12	-0.14	1.8	-0.7
2017-18	1.41	1.73	0.59	0.72	2.00	2.45	1.12	1.38	0.48	0.59	0.64	0.79	5.2	5.5
2018-19	1.52	1.85	0.52	0.63	2.04	2.48	0.64	0.77	0.47	0.57	0.17	0.20	2.9	1.3
2019-20	1.46	1.74	0.49	0.59	1.95	2.33	1.19	1.42	0.37	0.45	0.82	0.98	5.2	5.7
2020-21	1.54	1.81	0.50	0.59	2.04	2.40	2.02	2.38	0.36	0.42	1.66	1.95	8.5	12.3
2021-22	1.88	2.12	0.70	0.79	2.58	2.91	1.80	2.04	0.30	0.34	1.50	1.69	6.1	7.7
2022-23	2.40	2.57	0.84	0.90	3.24	3.47	1.67	1.79	0.47	0.51	1.19	1.28	6.6	7.7
2023-24	2.40	2.46	0.75	0.77	3.15	3.24	2.50	2.56	0.72	0.74	1.77	1.82	7.7	8.8
2024-25	2.40	2.40	0.64	0.64	3.04	3.04	1.87	1.87	0.68	0.68	1.19	1.19	6.2	6.4

Note: 'Real' dollar values are the nominal values converted to 2024-25 dollar equivalents by the consumer price index (CPI) to allow for inflation.

Table B3 Northern Victoria TMR farms – average farm physical information

	Total usable area	Number of milkers	Milk sold	Homegrown feed as % of ME consumed	Water use efficiency	Labour efficiency	Concentrate price	Concentrate price
Year	ha	head	kg MS/cow		t DM/100mm/ha	kg MS/labour unit	Nominal (\$/t DM)	Real (\$/t DM)
2016-17	583	629	609	56	0.8	58,023	369	461
2017-18	580	687	653	53	1.0	64,247	373	458
2018-19	653	777	653	58	1.2	67,220	511	619
2019-20	679	837	668	46	0.9	68,713	466	557
2020-21	701	890	681	43	1.1	68,488	399	470
2021-22	701	913	666	50	1.1	67,872	452	509
2022-23	704	922	643	49	0.7	60,367	536	573
2023-24	973	1252	704	53	1.0	58,450	528	542
2024-25	930	1118	757	51	1.1	61,227	572	572

Table A4 DFMP farms – average farm income, costs and profit per kilogram of milk solids

Income						
Year	Milk income net		All other farm income		Gross farm income	
	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS
2016-17	5.29	6.62	0.68	0.85	5.97	7.46
2017-18	6.00	7.36	0.65	0.80	6.65	8.16
2018-19	6.34	7.68	0.46	0.56	6.81	8.24
2019-20	7.43	8.88	0.65	0.77	8.08	9.65
2020-21	7.24	8.52	0.80	0.94	8.04	9.46
2021-22	7.73	8.72	0.96	1.08	8.69	9.80
2022-23	10.16	10.87	0.96	1.02	11.11	11.89
2023-24	10.16	10.44	0.84	0.86	11.00	11.30
2024-25	9.47	9.47	0.76	0.76	10.23	10.23

Variable costs										
Year	Herd and shed costs		Homegrown feed costs		Purchased feed costs		Feed and water inventory change		Total variable costs	
	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS
2016-17	0.53	0.67	1.24	1.55	1.86	2.32	0.00	0.00	3.42	4.27
2017-18	0.52	0.64	1.34	1.65	1.84	2.26	0.18	0.22	3.88	4.77
2018-19	0.51	0.62	1.84	2.23	2.66	3.23	0.15	0.19	5.22	6.32
2019-20	0.48	0.58	1.34	1.61	3.07	3.67	-0.21	-0.26	4.68	5.59
2020-21	0.49	0.57	1.49	1.75	2.19	2.58	-0.39	-0.46	3.78	4.45
2021-22	0.56	0.64	1.48	1.67	2.25	2.53	-0.22	-0.24	4.08	4.60
2022-23	0.62	0.66	1.56	1.67	3.05	3.26	-0.13	-0.13	5.07	5.43
2023-24	0.64	0.66	1.73	1.77	2.93	3.01	-0.22	-0.22	5.08	5.22
2024-25	0.53	0.53	1.69	1.69	3.23	3.23	-0.06	-0.06	5.37	5.37

Overhead costs							Profit							
Year	Cash overhead costs		Non-cash overhead costs		Total overhead costs		Earnings before interest and tax		Interest and lease costs		Net farm income		RoTA %	RoE %
	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS		
2016-17	1.15	1.44	1.01	1.27	2.16	2.71	0.39	0.49	0.57	0.71	-0.18	-0.22	1.2	-1.9
2017-18	1.07	1.32	1.08	1.33	2.16	2.65	0.61	0.75	0.57	0.69	0.04	0.05	2.4	0.8
2018-19	1.14	1.38	1.05	1.27	2.19	2.65	-0.60	-0.73	0.57	0.69	-1.17	-1.42	-2.2	-8.3
2019-20	1.14	1.36	1.00	1.19	2.14	2.55	1.26	1.51	0.46	0.56	0.80	0.95	4.4	4.3
2020-21	1.24	1.46	0.99	1.17	2.23	2.63	2.02	2.38	0.46	0.54	1.56	1.84	7.3	10.0
2021-22	1.39	1.57	1.09	1.22	2.48	2.80	2.13	2.40	0.45	0.51	1.67	1.89	6.3	8.1
2022-23	1.61	1.72	1.23	1.32	2.81	3.01	3.23	3.45	0.55	0.59	2.68	2.87	8.7	12.7
2023-24	1.78	1.82	1.06	1.09	2.84	2.91	3.09	3.17	0.67	0.69	2.41	2.48	8.0	10.0
2024-25	1.77	1.77	0.97	0.97	2.72	2.72	2.14	2.14	0.71	0.71	1.43	1.43	6.0	6.0

Note: 'Real' dollar values are the nominal values converted to 2024-25 dollar equivalents by the consumer price index (CPI) to allow for inflation. From 2017/18, gross farm income does not include feed and water inventory changes. These are included in feed costs.

Table B4 DFMP farms – average farm physical information

	Total usable area	Number of milkers	Milk sold	Homegrown feed as % of ME consumed	Water use efficiency	Labour efficiency	Concentrate price	Concentrate price
Year	ha	head	kg MS/cow	%	t DM/ 100mm/ha	kg MS/ labour unit	Nominal (\$/t DM)	Real (\$/t DM)
2016-17	277	385	485	58	0.7	51,529	310	388
2017-18	252	367	521	60	0.8	53,791	360	442
2018-19	282	399	524	60	0.9	53,394	526	637
2019-20	288	394	562	49	0.8	58,996	502	600
2020-21	300	398	577	54	0.9	58,423	417	491
2021-22	321	392	580	56	0.8	56,726	483	545
2022-23	312	409	545	55	0.6	53,966	550	588
2023-24	348	458	566	56	0.8	55,751	540	554
2024-25	348	511	599	54	0.9	61,891	531	531

Table A5 Inland NSW DFMP farms – average farm income, costs and profit per kilogram of milk solids

Income														
Milk income net		All other farm income		Gross farm income										
Year	Nominal /kgMS	Real /kgMS	Nominal /kgMS	Real /kgMS	Nominal /kgMS	Real /kgMS								
2016-17	6.02	7.52	0.86	1.07	6.87	8.59								
2017-18	6.56	8.05	0.68	0.84	7.24	8.89								
2018-19	6.72	8.13	0.35	0.42	7.06	8.55								
2019-20	7.59	9.07	0.58	0.70	8.17	9.76								
2020-21	7.86	9.26	0.94	1.11	8.81	10.37								
2021-22	8.21	9.26	1.14	1.28	9.35	10.54								
2022-23	10.89	11.66	1.24	1.33	12.13	12.98								
2023-24	10.97	11.26	0.86	0.88	11.83	12.15								
2024-25	10.20	10.20	0.77	0.77	10.97	10.97								

Variable costs														
Herd and shed costs		Homegrown feed costs		Purchased feed costs		Feed and water inventory change		Total variable costs						
Year	Nominal /kgMS	Real /kgMS	Nominal /kgMS	Real /kgMS	Nominal /kgMS	Real /kgMS	Nominal /kgMS	Real /kgMS	Nominal /kgMS	Real /kgMS				
2016-17	0.59	0.74	1.31	1.63	1.98	2.48	0.00	0.00	3.66	4.57				
2017-18	0.49	0.60	1.56	1.91	1.89	2.32	0.11	0.13	4.04	4.96				
2018-19	0.44	0.54	2.16	2.61	2.60	3.14	0.28	0.34	5.70	6.90				
2019-20	0.43	0.52	1.38	1.65	3.13	3.74	0.01	0.01	4.92	5.88				
2020-21	0.48	0.57	1.49	1.75	2.34	2.75	-0.52	-0.61	3.79	4.46				
2021-22	0.56	0.63	1.79	2.01	2.27	2.56	-0.50	-0.56	4.15	4.68				
2022-23	0.70	0.75	1.95	2.09	2.98	3.19	-0.49	-0.52	5.07	5.43				
2023-24	0.62	0.64	1.90	1.95	3.02	3.10	-0.28	-0.29	5.26	5.41				
2024-25	0.55	0.55	2.09	2.09	3.33	3.33	-0.12	-0.12	5.51	5.51				

Overhead costs							Profit							
Cash overhead costs		Non-cash overhead costs		Total overhead costs			Earnings before interest and tax		Interest and lease costs		Net farm income		RoTA %	RoE %
Year	Nominal /kgMS	Real /kgMS	Nominal /kgMS	Real /kgMS	Nominal /kgMS	Real /kgMS	Nominal /kgMS	Real /kgMS	Nominal /kgMS	Real /kgMS	Nominal /kgMS	Real /kgMS		
2016-17	1.34	1.68	1.00	1.25	2.35	2.93	0.87	1.08	0.46	0.57	0.41	0.51	3.2	1.8
2017-18	1.28	1.57	1.08	1.33	2.36	2.90	0.84	1.03	0.48	0.59	0.36	0.44	3.3	1.7
2018-19	1.24	1.50	0.82	0.99	2.05	2.49	-0.69	-0.84	0.44	0.53	-1.13	-1.36	-3.0	-8.9
2019-20	1.27	1.52	0.89	1.07	2.17	2.59	1.08	1.29	0.41	0.49	0.67	0.81	4.2	3.2
2020-21	1.43	1.68	0.87	1.02	2.30	2.70	2.72	3.21	0.37	0.43	2.36	2.78	10.1	14.9
2021-22	1.72	1.93	0.97	1.09	2.69	3.03	2.52	2.84	0.47	0.53	2.05	2.31	7.6	9.4
2022-23	2.05	2.20	1.28	1.37	3.19	3.41	3.87	4.14	0.36	0.39	3.51	3.75	10.5	12.7
2023-24	2.19	2.25	1.12	1.15	3.31	3.39	3.26	3.35	0.48	0.49	2.79	2.86	9.1	10.5
2024-25	2.20	2.20	1.13	1.13	3.20	3.20	2.27	2.27	0.47	0.47	1.80	1.80	6.9	7.1

Note: 'Real' dollar values are the nominal values converted to 2024-25 dollar equivalents by the consumer price index (CPI) to allow for inflation. From 2017/18, gross farm income does not include feed and water inventory changes. These are included in feed costs.

Table B5 Inland NSW DFMP farms – average farm physical information

	Total usable area	Number of milkers	Milk sold	Homegrown feed as % of ME consumed	Water use efficiency	Labour efficiency	Concentrate price	Concentrate price
Year	ha	head	kg MS/cow	%	t DM/100mm/ha	kg MS/labour unit	Nominal (\$/t DM)	Real (\$/t DM)
2016-17	498	595	507	62	0.9	49,660	319	399
2017-18	419	505	524	64	0.9	48,678	378	464
2018-19	552	618	571	61	0.8	57,507	563	682
2019-20	568	597	597	47	0.7	60,620	529	632
2020-21	570	575	608	49	0.9	56,798	332	391
2021-22	590	609	611	55	0.9	54,928	453	510
2022-23	608	684	565	56	0.7	50,333	534	571
2023-24	607	745	588	56	0.9	50,801	549	564
2024-25	679	858	633	61	1.0	58,692	519	519

Table A6 Northern Victoria DFMP farms – average farm income, costs and profit per kilogram of milk solids

Income														
Year	Milk income net		All other farm income		Gross farm income									
	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS								
2016-17	5.07	6.34	0.63	0.78	5.70	7.13								
2017-18	5.83	7.15	0.64	0.79	6.47	7.95								
2018-19	6.24	7.56	0.49	0.60	6.74	8.16								
2019-20	7.40	8.84	0.66	0.79	8.06	9.63								
2020-21	7.07	8.33	0.76	0.90	7.83	9.22								
2021-22	7.61	8.58	0.91	1.03	8.52	9.61								
2022-23	9.97	10.67	0.88	0.95	10.86	11.62								
2023-24	9.96	10.23	0.83	0.86	10.79	11.09								
2024-25	9.31	9.31	0.76	0.76	10.07	10.07								

Variable costs														
Year	Herd and shed costs		Homegrown feed costs		Purchased feed costs		Feed and water inventory change		Total variable costs					
	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS				
2016-17	0.52	0.64	1.22	1.52	1.82	2.28	0.00	0.00	3.35	4.18				
2017-18	0.53	0.65	1.28	1.57	1.83	2.24	0.20	0.24	3.84	4.71				
2018-19	0.53	0.65	1.76	2.13	2.68	3.25	0.12	0.15	5.09	6.17				
2019-20	0.49	0.59	1.34	1.60	3.06	3.65	-0.26	-0.31	4.62	5.53				
2020-21	0.49	0.57	1.49	1.75	2.16	2.54	-0.36	-0.42	3.78	4.45				
2021-22	0.57	0.64	1.40	1.58	2.24	2.53	-0.14	-0.16	4.06	4.58				
2022-23	0.59	0.63	1.46	1.57	3.05	3.26	-0.04	-0.04	5.07	5.43				
2023-24	0.64	0.66	1.68	1.73	2.90	2.98	-0.20	-0.21	5.03	5.17				
2024-25	0.53	0.53	1.61	1.61	3.26	3.26	-0.05	-0.05	5.35	5.35				

Overhead costs							Profit							
Year	Cash overhead costs		Non-cash overhead costs		Total overhead costs		Earnings before interest and tax		Interest and lease costs		Net farm income		RoTA %	RoE %
	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS	Nominal \$/kgMS	Real \$/kgMS		
2016-17	1.09	1.36	1.02	1.27	2.11	2.64	0.25	0.31	0.60	0.75	-0.35	-0.44	0.6	-3.0
2017-18	1.01	1.24	1.08	1.33	2.10	2.57	0.54	0.66	0.59	0.72	-0.05	-0.06	2.1	0.5
2018-19	1.11	1.35	1.11	1.34	2.22	2.69	-0.58	-0.70	0.61	0.74	-1.19	-1.43	-2.0	-8.2
2019-20	1.11	1.32	1.02	1.22	2.13	2.55	1.30	1.55	0.48	0.57	0.82	0.98	4.5	4.6
2020-21	1.19	1.40	1.03	1.21	2.22	2.61	1.84	2.17	0.48	0.57	1.36	1.60	6.6	8.7
2021-22	1.31	1.48	1.12	1.26	2.43	2.74	2.03	2.29	0.45	0.50	1.58	1.78	6.0	7.8
2022-23	1.50	1.61	1.22	1.30	2.72	2.91	3.07	3.28	0.59	0.63	2.47	2.65	8.3	12.8
2023-24	1.67	1.72	1.05	1.08	2.72	2.79	3.04	3.12	0.72	0.74	2.32	2.38	7.7	9.9
2024-25	1.68	1.68	0.94	0.94	2.62	2.62	2.11	2.11	0.76	0.76	1.35	1.35	5.9	5.7

Note: 'Real' dollar values are the nominal values converted to 2024-25 dollar equivalents by the consumer price index (CPI) to allow for inflation. From 2017/18, gross farm income does not include feed and water inventory changes. These are included in feed costs.

Table B6 Northern Victoria DFMP farms – average farm physical information

	Total usable area	Number of milkers	Milk sold	Homegrown feed as % of ME consumed	Water use efficiency	Labour efficiency	Concentrate price	Concentrate price
Year	ha	head	kg MS/cow	%	t DM/ 100mm/ha	kg MS/ labour unit	Nominal (\$/t DM)	Real (\$/t DM)
2016-17	210	321	479	57	0.7	52,090	308	385
2017-18	201	325	520	59	0.7	55,325	355	435
2018-19	211	341	511	59	0.9	52,311	517	626
2019-20	226	350	555	49	0.8	58,642	496	593
2020-21	229	352	569	56	0.9	58,847	439	517
2021-22	254	338	572	56	0.8	57,175	491	554
2022-23	237	341	540	54	0.6	54,874	554	592
2023-24	283	386	560	56	0.8	56,989	537	552
2024-25	278	439	591	53	0.8	62,557	533	533

Glossary

All other farm income

Income to the farm from all sources except milk. Includes livestock trading profit, dividends, interest payments received, and rent from farm houses.

Asset

Anything managed by the farm, whether it is owned or not. Assets include owned and leased land and buildings, plant and machinery, fixtures and fittings, trading stock, farm investments (i.e. Farm Management Deposits), debtors, and cash.

Average

The sum of all values in a category divided by the number of summed values unless an exclusion has been specified.

Concentrates

Refers to feed with a concentrated source of energy such as grains, pellets and other grain mixes, as well as minerals and additives.

Depreciation

Decrease in value over time of capital asset, usually as a result of using the asset. Depreciation is a non-cash cost of the business but reduces the book value of the asset and is therefore a cost.

Earnings before interest and tax (EBIT)

Gross income minus total variable and total overhead costs.

Employed labour cost

Cash cost of any paid employee, including on-costs such as superannuation and Workcover. Also referred to as paid labour.

Equity

Total assets minus total liabilities. Equal to the total value of capital invested in the farm business by the owner/ operator(s).

Fat and protein corrected milk (FPCM)

Milk composition standardised for fat and protein to allow comparisons based on nutritional content.

Feed costs

Cost of fertiliser, irrigation (including effluent), hay and silage making, fuel and oil, pasture improvement, fodder purchases, grain/concentrates, agistment and lease costs associated with any of the above costs, and feed inventory change.

Feed inventory change

An estimate of the feed on hand at the start and end of the financial year to capture feed used in the production of milk and livestock.

Full time equivalent (FTE)

Standardised labour unit. Equal to 2,400 hours a year. Calculated as 50 hours a week for 48 weeks a year.

Gross farm income

Farm income including milk sales, livestock trading and other income such as feed sales.

Herd costs

Cost of artificial insemination (AI) and herd tests, animal health and calf rearing.

Imputed labour cost

An allocated allowance for the cost of owner/operator, family, and sharefarmer time in the business. Also referred to as unpaid labour.

Interest and lease costs

Total interest plus total lease costs paid.

Labour cost

Cost of the labour resource on farm. Includes both imputed and employed labour costs.

Labour efficiency

Full time equivalents (FTEs) per kilogram of milk solids (/kg MS). Measures productivity of the total labour resources in the business.

Liability

Money owed to someone else, e.g., family or a financial institute such as a bank. Also known as borrowings.

Livestock trading profit

An estimate of the annual contribution to gross farm income by accounting for the changes in the number and value of livestock during the year. It is calculated as the trading income from sales minus purchases, plus changes in the value and number of livestock on hand at the start and end of the year, and accounting for births and deaths.

Milk income

Income from the sale of milk. This is net of compulsory levies and charges.

Net farm income

Earnings before interest and tax (EBIT) minus interest and lease costs. The amount of profit available for capital investment, loan principal repayments and tax.

Number of milkers

Total number of cows milked for at least three months.

Overhead costs

All fixed costs incurred by the farm business that do not vary with the level of production. These include cash overhead costs such as employed labour and non-cash costs such as imputed owner-operator labour, family labour and depreciation of plant and equipment. It excludes interest, lease costs, capital expenditure, principal repayments, drawings, and tax.

Real terms

Real terms adjust for inflation, showing the purchasing power or value over time to allow reasonable comparisons between years and between other businesses "in 2024-25 dollars".

Return on equity (ROE)

Net farm income divided by the value of total equity.

Return on total assets (ROTA)

Earnings before interest and tax divided by the value of total assets under management, including owned and leased land.

Shed costs

Cost of shed power and dairy supplies such as filter socks, rubberware, vacuum pump oil etc.

Total usable area

Total hectares managed minus the area of land which is of little or no value for livestock production e.g., house and shed area.

Variable costs

All costs that vary with the size of production in the enterprise e.g., herd, shed and feed costs (including feed and water inventory change).

Water inventory change

An estimate of the values irrigation water on hand at the start and end of the financial year to capture water used in the production of pasture and crops.

Water use efficiency

Homegrown feed consumed and harvested per 100 mm water 'applied' (rainfall and irrigation) to the usable hectares on the farms.

Feeding Systems**Low bail**

Low bail is defined by the one-tonne annual cap of grain or concentrates fed in the dairy bail – i.e. cows are fed up to one tonne of grain and concentrate in the dairy at milking time throughout lactation and livestock graze pasture all year round.

Moderate – High bail

The level of grain or concentrate fed in the bail is more significant than one tonne per annum, and livestock graze pasture all year round.

Partial mixed ration

In the partial mixed ration (PMR) system, livestock animals graze on pasture for most of the year, if not all of the year, while being fed a PMR on a feed pad.

Hybrid system

Hybrid systems are classified as grazing pasture for fewer than nine months of the year while feeding a partial mixed ration on a feed pad with grain or concentrates.

Total mixed ration

A total mixed ration or TMR is classified by zero-grazing, where cows are contained and fed a TMR throughout the year.

References

Australian Dairy Carbon Calculator

Australian Dairy Carbon Calculator Manual Version 6.1 (2025)

Australian Dairy Sustainability Framework

Agriculture Victoria On-Farm Emissions Action Plan Pilot

Dairy Australia (2026) Dairy Feepads and Contained Housing National Guidelines Fourth Edition

Dairy Australia Milk Production Reports – NSW Milk Production Report 2023–24; VIC Milk Production Report 2023–24

DairyUP Unlocking Potential, P3 – Economics of Intensification

Dairy Farm Monitor Project inland NSW and Northern Victoria total mixed ration feeding systems 2023/24

Dairy Farm Monitor Project New South Wales (2016 to 2024)

Dairy Farm Monitor Project Victoria (2016 to 2024)

DCCEEW (Department of Climate Change, Energy, the Environment and Water) 2024 National Inventory Report 2022

Ho., C.K.M., Newman, M., Dalley, D.E., Little, S., Lane, N., and Wales, W.J. (2012) Performance, return and risk of different dairy systems in Australia and New Zealand. Proceedings of the Australian Dairy Science Symposium p107-122.





1800 004 377
dairyaustralia.com.au