

Organics

Profitably farming – more sustainably

Since 2016 Pāmu has been investing in organic dairy farming. Pāmu operates with the belief that environmentally sound farming practices create the highest-quality natural products. This means environmental considerations are an integral part of all steps in the Pāmu journey – from pasture to plate.

With that background, Pāmu identified that a shift to organic milk supply had the potential to lower the

environmental footprint, but the premiums for organic milk would mean no loss in commercial viability.

Today we have a total of 11 farms and three runoffs, based in Wairākei near Taupō, and Moutoa in the lower North Island.

We have 6,430 cows on 4,190ha across these farms, making Pāmu the largest organic dairy farmer in Aotearoa New Zealand.

Why organics at Pāmu?

Pāmu started the first organic conversions on two farms in 2016: Earnslaw in the Central Plateau Pastoral Complex at Wairākei, and Tasman in the Manawatū Moutoa Complex. The aim was to pilot and learn from a farming system with a lower environmental footprint, that had equal profitability to conventional.

A secondary driver in the Central Plateau was evolving environmental regulations, notably the Proposed Waikato Regional Plan Change 1 (PC1). Earnslaw is an irrigated farm, and irrigated farms have a larger environmental footprint.

The objective was a sustainable business strategy where we would be de-risking the farm businesses through:

- Fewer cows – shorter milking times
- BCS focus – fewer animal health issues to treat
- BCS focus – improved reproductive performance
- Lower SCC – problem animals removed
- Longer grazing round length – increased buffer for adverse events
- Green cover – creating extra feed options and reducing runoff and loss of topsoil
- Reduced emissions and leaching
- Underpinned by a strong focus on people.

Expanding the organics journey

Both Earnslaw and Tasman had many successes with organic milk supply. Modelling alongside observed performance and an external review by BakerAg showed that within certain conditions these farms could achieve a sustainable increase in profitability, with a lower environmental footprint.

Pāmu planned a staged progression to convert more farms to organic in both regions. Moutoa is on the journey to fully organic, while Pastoral has four organic dairy farms and two runoffs.

The key to this working has been recruiting people who are passionate about sustainable farming. Our organic team is committed to organics and continually exploring alternative tools to support this system. While profitability is fundamental to a sustainable business model, the key 'whys' are about our people and future generations, our environment, our role as Kaitiakitanga, and looking after our valued animals who generate premium-quality milk.

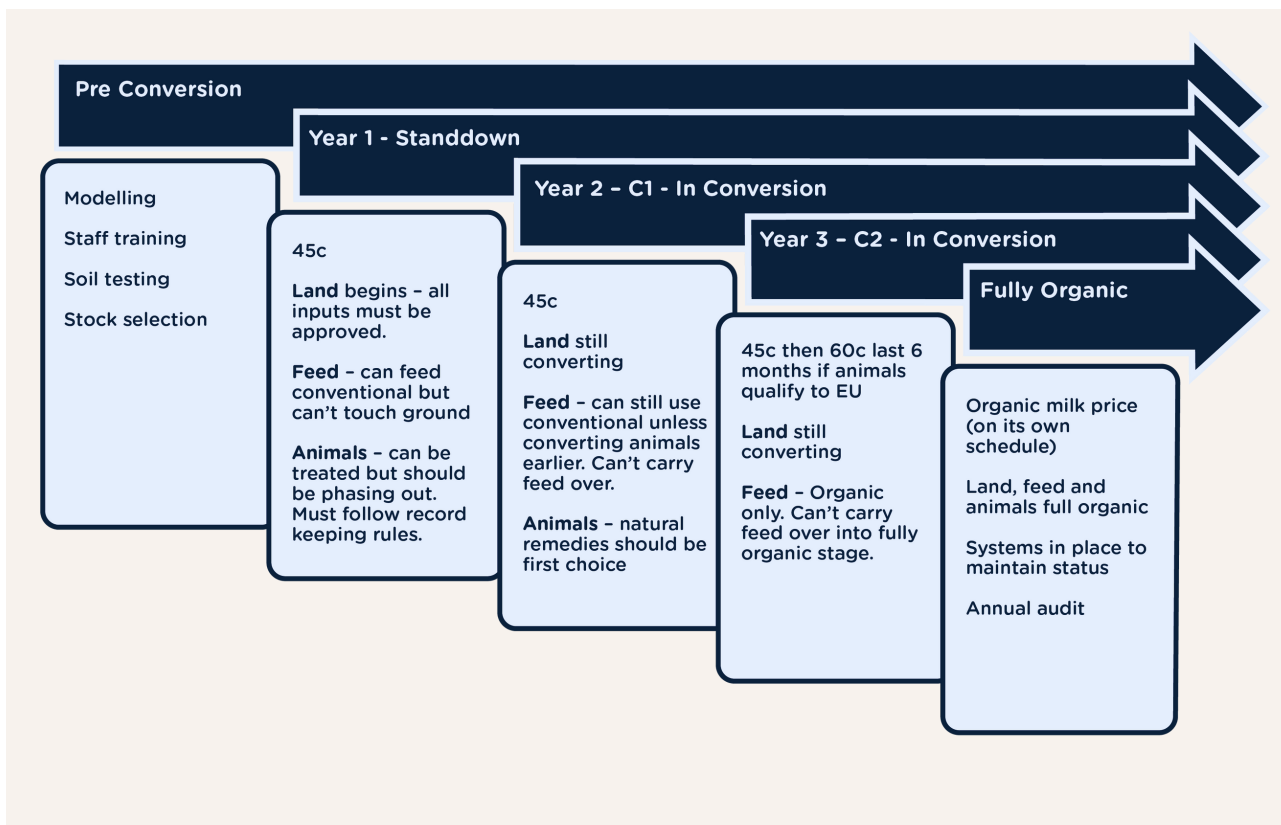


Pāmu Organics farm conversions today

Farm Name	Location	Farm Type	Start of Organics	Full Start Date	Hectares	Dairy Cows @ 2023
Earnslaw	Pastoral	Dairy	10/10/2016	10/10/2019	340	780
Burgess	Pastoral	Dairy	10/10/2019	10/10/2022	258	580
Broadlands	Pastoral	Dairy	10/10/2020	10/10/2023	515	1150
Mayflower	Pastoral	Dairy	10/10/2019	10/10/2022	294	680
Tasman	Moutoa	Dairy	10/10/2016	10/10/2019	155	325
Tūtoko	Moutoa	Dairy	10/10/2017	10/10/2020	145	310
Aoraki	Moutoa	Dairy	10/10/2019	10/10/2022	200	440
Egmont	Moutoa	Dairy	10/10/2021	10/10/2024	194	470
Tongariro	Moutoa	Dairy	10/10/2022	10/10/2025	207	455
Ruapehu	Moutoa	Dairy	11/10/2022	10/10/2025	262	580
Aspiring	Moutoa	Dairy	12/10/2022	10/10/2025	290	640
PODS	Pastoral	Runoff	10/10/2019	10/10/2022	711	650 R1s, 650 R2s, 1250 winter cows
Duke	Pastoral - Earnslaw	Runoff	10/10/2016	10/10/2019	335	350 R1s, 350 R2s, 700 winter cows
Short Road	LNI	Runoff	10/10/2021	10/10/2024	284	500 R1s, 500 R2s

Converting to Organics

Under an organic system many 'conventional' inputs are no longer permitted. This includes antibiotics, urea and other synthetic fertilisers, noncertified organic feed, anthelmintic drench, and treated timber.



It takes three years to convert land to organics and one year to convert animals.

Maintaining certification

Regulations require careful management and a strong attention to detail. Responsibility sits with our on-farm team and management.

On-farm teams need to be vigilant and dedicated to adhering to strict organic system requirements. Putting in good structure and establishing robust systems and processes have been critical to executing the system design change.

“Through learning and passion, we challenged our thinking around what tools are critical. We were afraid at first on how we could farm without many of the things we relied on. However, we have found that we have been able to achieve equal, or better results than Pāmu conventional farms under most performance metrics.”

- Cleo Te Kiri, Dairy Business Manager Organics



Management and performance

In organics you don't have to throw everything in the bin. Some products are allowed with restrictions:

- Pain relief – some anti-inflammatories (such as Norflunix) are permitted with animal record, withholding, and paperwork requirements.
- Drench – a small selection of pour-on products are approved. These cannot be used as a preventative and must have written instructions from a vet. There are withholding rules and restrictions on how many times an animal can be treated per year. They typically result in animals never being able to be sold as organic meat animals so we try to avoid needing it.
- Minerals – most approved with proof of need and vet recommendation.
- Feed – only feed certified to the same markets as the farm. We use silage from the runoffs, and kibbled maize for young stock at Earnslaw. Our other organic farms have kibbled maize for milking cows and we have a kibbling facility on one Pastoral farm (Broadlands).
- Cleaning products – key products for the shed are approved with protocols.

Certification standards

Our organic farms meet a wide range of certification standards which allows access to markets across the world, therefore allowing Fonterra to pursue high-value partnerships.

Certification standards which we hold include:

- IFOAM/AQ Standard
- EU
- GB
- Switzerland
- Canada/COR
- Taiwan
- China
- Korea
- USDA

Management and performance

Animals

Our organic farms do not use antibiotics. Animals treated with a prohibited product must leave the farm. Prevention is our key strategy. Some farms use homeopathy.

Young stock are not drenched with anthelmintic drenches unless there is a critical need and then a portion of the mob will receive an approved drench. This is typically limited to once annually, so we are very targeted and strategic about the timing, and most young stock get nothing.

Young stock get moved daily and we focus on longer residuals to prevent them from eating down too low and introducing parasites into their system. We weigh them every six weeks and draft them into management lines as needed. This has not been without challenges and there is always plenty to learn.

Mortality rates

Death rates are typically comparable to our conventional farms; however, this season mastitis and a higher incidence of down cows has presented challenges to the team.

2023: Pastoral Organics – 3.7%. Non-weighted dairy average – 4.5%

2024 season to date: Pastoral Organics – 4.5%. Non-weighted dairy average – 2.7%.

Nevertheless, our organic farms have some stand-out performers in animal welfare:

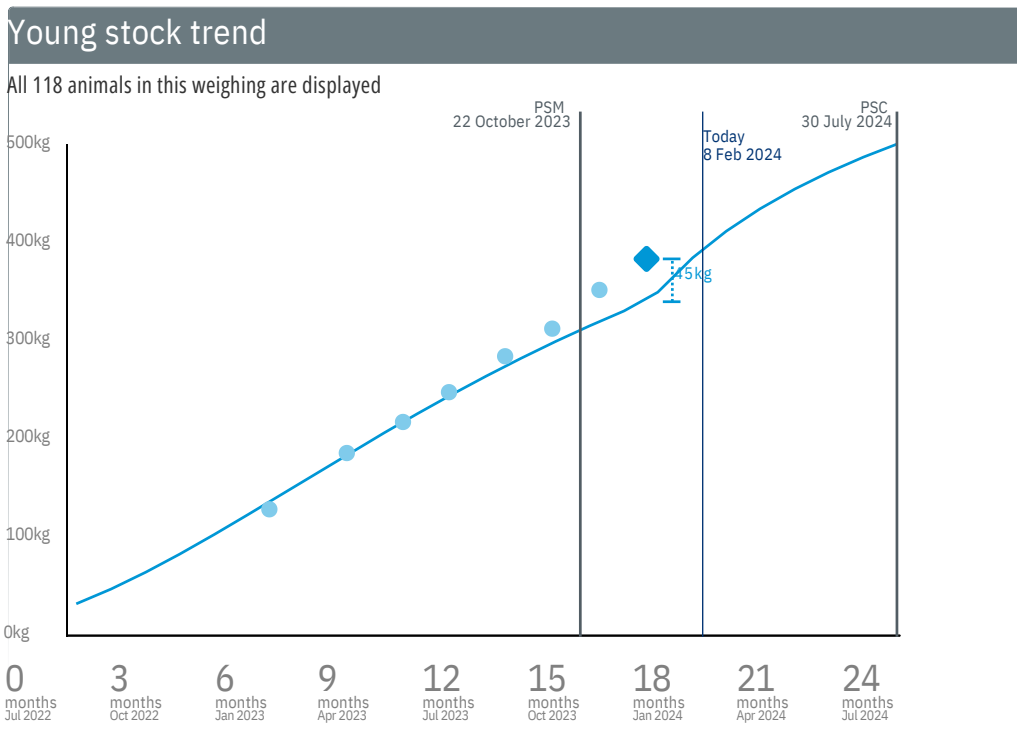
- Mayflower is the only farm in Pāmu and Fonterra’s organic programme to achieve Te Tihi premium milk quality including SCC.
- Our young stock weights are often amongst the best in the company.

Combined R2 LWTs DEC 2024	Count	Avg weight	% From Guideline	Kg From Guideline
Aoraki	99	383 kg	10 %	33.50 kg
Broadlands	261	374 kg	9 %	29.04 kg
Burgess	120	392 kg	13 %	44.45 kg
Earnslaw	186	363 kg	7 %	23.40 kg
Mayflower	148	379 kg	10 %	33.52 kg
Tūtoko	70	380 kg	10 %	34.09 kg
Grand Total	959	376 kg	9 %	30.59 kg

Animal management

The teams are always finding new ways to extend our philosophies to define sustainable farming. We are into our fourth season of mating heifers to Angus at Mayflower, and have extended this to some of the other herds. This means more calves are reared as Dairy Beef.

2022 Spring born



Once a day (OAD) milking is strategically used. At Pastoral we typically OAD our heifers, and then we OAD based on BCS through the season.

Most farms will run a OAD herd all year. This reduces stress on the cows, meaning less lameness, lower SCC, higher body condition score, better in-calf rates (see comparative six-week ICRs at Pastoral), and more time for staff to look after the stock that are unwell as it is a much more labour-intensive process.



Pastoral Complex ICR	2020	2021	2022	2023
Conventional 6 Week ICR Average	68%	64%	64%	68%
Organic 6 week ICR Average	71%	67%	72%	72%
Variance	3%	4%	8%	4%

Land and infrastructure

Weed control is manual/mechanical and can present challenges, however our organic farms here are not 'weedier' than our conventional farms.

Existing fences convert with the farm; however, we can no longer introduce treated timber – it must be untreated. Only products like waratahs, concrete posts, and future posts are approved.

In terms of regenerative farming we use tools that will complement organics, of which many can be considered regenerative.

These include:

- Mixed species (12 – 20 species mixes)
- Cover crops
- Deferred paddocks
- More direct drilling than cultivation
- Higher residuals and slower rotation
- Maintenance fertiliser must be certified and there are regulations on how it is sourced. For Earnslaw we apply Pure RPR, Pure Sulphate of Potash, Pure Sulphur gain 90s, Pure Selenium, Pure Cobalt. We have used organically certified chicken manure and seaweed.

People

Pāmu takes training and inducting staff onto our organic farms seriously. Farm teams are fully supported by a corporate management structure to ensure performance and compliance to organic rules.

Farm teams share data and knowledge to develop a supportive team structure and encourage performance. Managers have responsibility for all on-farm decisions and are monitored against their annual farm plans and budgets.

We identify and encourage personal development opportunities for all team members, and encourage succession. Last season we had the lowest turnover in the dairy group at 17%, compared to the non-weighted average of other dairy complexes of 37%.

2024 data is not yet available but we have only had one staff member leave to another Pāmu farm for a progression opportunity.




Earnslaw financials

	2016	2017	2018	2019	2020	2021	2022	2023	2024 B
Peak Cows	895	789	800	800	870	780	776	780	780
Ha Dairy	340	340	340	340	340	340	340	340	340
Ha Runoff		335	335	335	335	335	335	335	335
MS	303,406	251,183	277,383	265,427	273,629	289,172	264,070	273,247	274,561
MS/Ha	892	739	816	781	805	851	777	804	808
MS/Cow	339	318	347	332	315	371	340	350	352
TOTAL REV	\$ 1,574,944	\$ 1,785,528	\$ 2,147,537	\$ 2,084,619	\$ 2,776,554	\$ 2,956,018	\$ 2,852,308	\$ 3,279,152	\$ 2,990,650
TOTAL EXP	\$ 1,013,861	\$ 1,146,386	\$ 900,179	\$ 1,057,747	\$ 1,191,176	\$ 1,172,731	\$ 1,390,111	\$ 1,617,648	\$ 1,728,094
Exp to Inome Ratio	64%	64%	42%	51%	43%	40%	49%	49%	58%
EBITDA	\$ 561,082	\$ 639,142	\$ 1,247,358	\$ 1,026,873	\$ 1,585,377	\$ 1,783,287	\$ 1,462,198	\$ 1,661,504	\$ 1,230,487
COP	\$ 3.34	\$ 4.56	\$ 3.25	\$ 3.99	\$ 4.35	\$ 4.06	\$ 5.26	\$ 5.92	\$ 6.36
ROA %	3.98%	4.43%	8.63%	7.18%	11.23%	12.60%	9.81%	11.16%	8.26%
N Loss per Ha	33	30	30	28	27	22	22	21	
GHG per Ha	9,175	5,860	5,860	6,077	4,743	4,736	4,787	5,164	

Earnslaw farm's performance is detailed in the table above. The comparison to Pāmu conventional farms is on the adjacent page.

Comparison of the organic milk price trends verses conventional is below (data correct as at 12/02/2024).

			
Season	Organic Farm Gate Milk Price	Conventional Farm Gate Milk price	Difference
2016/17	\$8.83	\$6.12	2.71
2017/18	\$7.50	\$6.69	0.81
2018/19	\$8.47	\$6.35	2.12
2019/20	\$10.19	\$7.14	3.05
2020/21	\$8.85	\$7.54	1.31
2021/22	\$10.02	\$9.30	0.72
2022/23	\$10.80	\$8.22	2.58
2023/24 (midpoint used)	\$9.55	\$7.80	1.75
Averages	\$9.28	\$7.40	1.88

Pastoral

		2018	2019	2020	2021	2022	2023	Average
FWE/kgMS	Pastoral Conventional	\$2.6	\$3.1	\$3.0	\$3.0	\$4.0	\$4.1	\$3.3
	Pastoral Organic	\$1.5	\$2.0	\$2.7	\$2.6	\$3.4	\$3.8	\$2.6
EBIT/Ha	Pastoral Conventional	\$1,746	\$1,027	\$1,853	\$2,558	\$2,481	\$1,603	\$1,878
	Pastoral Organic	\$2,871	\$2,193	\$2,602	\$2,875	\$2,806	\$2,866	\$2,702
Productivity Margin/kgMS	Pastoral Conventional	\$2.2	\$1.3	\$2.3	\$3.0	\$3.3	\$2.0	\$2.4
	Pastoral Organic	\$3.5	\$2.8	\$3.0	\$3.3	\$3.7	\$3.6	\$3.3
COP/kgMS	Pastoral Conventional	\$4.4	\$5.0	\$4.9	\$4.7	\$6.2	\$6.4	\$5.3
	Pastoral Organic	\$4.2	\$5.0	\$5.7	\$5.5	\$6.9	\$7.2	\$5.8
Conventional Included		17	18	16	15	15	15	
Organic Farms Included		1	1	3	4	4	4	

Moutoa

		2018	2019	2020	2021	2022	2023	Average
FWE/kgMS	Moutoa Conventional	\$4.1	\$3.2	\$2.6	\$2.4	\$3.7	\$0.0	\$3.2
	Moutoa Organic	\$3.4	\$1.9	\$2.0	\$2.3	\$3.0	\$2.8	\$2.6
EBIT/Ha	Moutoa Conventional	\$438	\$1,165	\$3,102	\$3,994	\$2,596	\$0.0	\$2,259.0
	Moutoa Organic	\$43	\$2,255	\$3,138	\$3,289	\$3,455	\$3,391	\$2,595.2
Productivity Margin/kgMS	Moutoa Conventional	\$0.4	\$1.0	\$2.6	\$3.4	\$2.7	\$0.0	\$2.0
	Moutoa Organic	\$0.1	\$2.5	\$3.5	\$3.6	\$4.1	\$4.0	\$3.0
COP/kgMS	Moutoa Conventional	\$6.9	\$5.7	\$4.8	\$4.7	\$6.8	\$0.0	\$5.8
	Moutoa Organic	\$7.5	\$4.9	\$5.2	\$5.3	\$6.6	\$6.3	\$6.0
Conventional Included		6	5	4	4	3	0	
Organic Farms Included		1	2	3	3	4	7	

Looking ahead

Overall, the stocking rate on our organic farms has gone down, and the cost of production has gone up. We grow less grass and can feed fewer animals, but we produce a more niche product, which we will be paid more for.

Our goals are:

- Harvesting more grass to reduce purchased feed requirements, reduce costs and drive production. We are focusing on which species suit our organic farms from a diversity, persistence, and animal health perspective.
- Mastitis management – establish a herd that suits organics, managing out cows that don't suit the system, and perfecting systems for managing mastitis.
- Cow BCS and young stock management will always be a key focus.
- Milk solids performance – continued focus to lift MS/cow.
- We are always building our toolkit and continue to attend open days and education sessions on organic and regenerative farming principles to see what suits our system.

What advice do we have for other farmers?

It is possible to reduce the environmental footprint without losing commercial viability through organic farming. The system change and restrictions in organics are not so significant that you can't continue to achieve great performance on farm.

This farm system aligns with some of the current changes coming down the pipeline for farmers.

Consider the question: Can you reduce or remove any of your current inputs such as drench, antibiotics, synthetic fertiliser? You may not wish to be organic but upon reflection the team has said they did not need these as much as they thought they did. The journey towards and outcomes of organic milk supply will not suit all dairy farmers. Pāmu took on this journey for environmental and commercial reasons. Researching the process and standards with grounded consideration of the implications is recommended.

“It is important you have the right people. You need to be invested and passionate about the system change.

“As a team we are proud of the sustainable model we have achieved on these farms and feel the philosophies of organics align with our personal values. This has been a key to our success.”

- Cleo Te Kiri, Dairy Business Manager Organics



Pāmu Pastoral Complex at Wairākei Estate



Owned by three Kiwi families, Wairākei Estate is developing a strong focus on sustainable initiatives, designing alternative farming systems to balance financial and environmental performance per hectare. Around half of the Estate, close to 12,500 ha, is leased to Pāmu and known as the Pastoral Complex.

It has 21 working farms, consisting of 19 bovine dairy sheds, one ovine dairy shed, and one large-scale calf rearing facility. The balance of the Estate is managed in other long term partnerships for pastoral farming, arable cropping, conservation, forestry, and geothermal energy land uses.

With the creation of highly productive land, Pāmu has an asset base totalling around \$150 million, and an annual turnover of around \$60 million.

Pāmu is producing 7 million kg/MS annually with the management of 20,000 dairy cows, and a further 10,000 dry stock.

Pāmu is the brand name for Landcorp Farming Limited, a State Owned Enterprise. Our government shareholders expect us to be profitable and efficient; an exemplar in employment and animal welfare practices; and to demonstrate and enable environmentally sustainable pastoral farming.

Pāmu exists today to enhance the future of agriculture for generations of New Zealanders to come, return land under Treaty of Waitangi settlements, and produce a financial return.

As a State Owned Enterprise, we are expected to exhibit social responsibility by having regard to the interests of the communities in which we operate. We aim to nurture and enrich the land on which we farm, balancing performance and the environment. We seek to ensure our farming activities contribute positively to ecosystems and communities while producing high-quality food and fibre.

OUR FARMS

- OWNED
- OWNED WITH QEII COVENANTS REGISTERED OR PENDING
- LANDCORP HOLDINGS LIMITED
- LEASED

