

Transitioning to a loose housing facility

Allanby Pastoral – Bamawm, Northern Victoria – December 2023



Overview

Allanby Pastoral's journey from a greenfield site in 1999 to the strategic transition to contained housing facilities in recent years reflects a continuous commitment to adapting and optimising their dairy farming operation. The initial expansion of the farm, responding to changing environmental conditions during the 2006–2009 drought, and the subsequent shift from perennial pasture to fodder crops and annual pastures reflects the farm's resilience and adaptability.

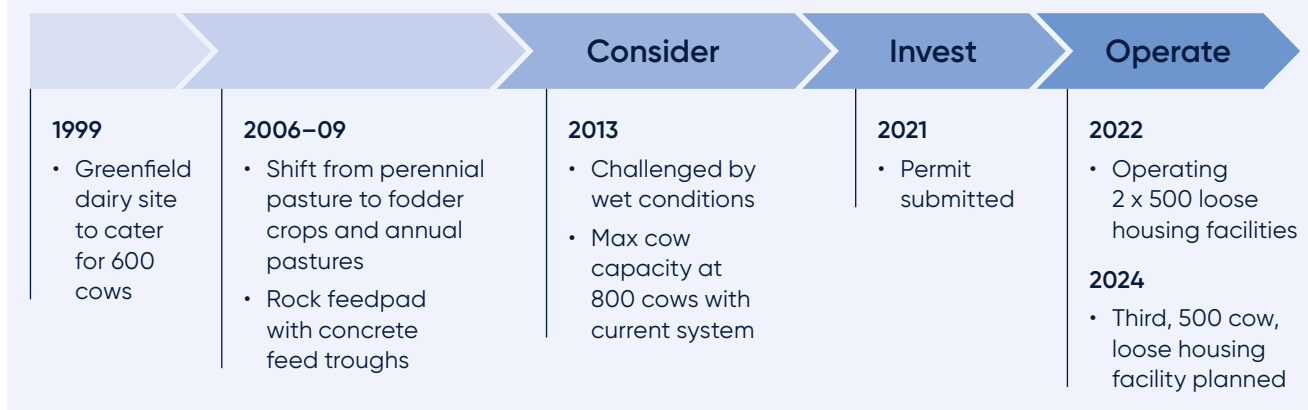
The decision to move towards a contained housing system, motivated by the imperative to expand the business, overcome challenges posed by wet conditions, and achieve heightened operational efficiency, heralded a crucial turning point for Allanby. Brendan's (farm manager) meticulous planning and extensive research laid the foundation for the successful construction of two loose housing facilities with a compost bedded pack, capable of accommodating 1,000 cows. The strategic approach to facility orientation, position

of the feed alleyway, and thoughtful implementation of sprinklers, fans, and cow brushes emphasised the priority given to cow health, comfort and overall system efficiency.

As the farm enters a new phase with the contained housing facilities fully operational, Brendan's insights on engaging electricians through quotes, improving early communication with the bank, and emphasising thorough planning emerged as key lessons through the invest phase. Brendan's messages to future transitions underscore the importance of staying focused on essential investments, avoiding undue influence from sales pitches, and tailoring decisions to the unique needs of the farm.

Allanby Pastoral's successful adaptation to a housed system, marked by diligent planning, strategic investments, and an unwavering commitment to cow welfare, positions them well for continued growth, success and sustainability in the evolving landscape of dairy farming in northern Victoria.

Timeline



History

Allanby Pastoral is a dairy farming operation at Bamawm in northern Victoria that converted a greenfield site to a dairy farm in 1999. The site was initially developed to cater for 600 cows with a 60-unit rotary dairy and the milking area was nearly all perennial pasture based. The original dairy farm was 330 ha across three farms. Over the first six years, the farm expanded its size, reaching a total of 472 usable ha. Brendan, the farm manager, played a pivotal role from day one, managing the initial 350 cows and rapidly growing the herd to 600 cows. A significant shift from perennial pasture to fodder crops occurred during the 2006–2009 drought, prompting the farm to explore alternative production systems, such as fodder crops and annual pastures. This change resulted in the cows getting more of their diet from the feedpad (less grazing).

Production system prior to transitioning to the loose housing facility

Early on, Allanby Pastoral built a rock feedpad with concrete feed troughs to cater for 600 cows. The feedpad was set up with a feeding alley for the machinery to drive down between two rows of concrete troughs. It was initially built for the purpose for somewhere to feed and loaf the cows prior to having to cross a road after milking.

After a while, they set up another nearby paddock with more concrete troughs so they could put fresh feed out into those troughs when the cows were on the first feedpad to make logistics easier. Prior to moving into the loose housing facilities, the cows were grazing when pasture was available, as well as being fed a Partial Mixed Ration (PMR) on the rock-based feedpad.

Consider phase

In 2013, Brendan, started to consider if a housed system would be a better fit for their business. Challenges with wet conditions, such as cows making a mess of the feeding areas, paddock and the laneways, was the main trigger. They had just come off two wet summers with single large rainfall events in consecutive years: 2011 and 2012. Later, when cow numbers increased (750

to 800 cows) infrastructure and logistic issues emerged, particularly around wet conditions and large numbers of cows entering paddocks causing pasture damage and compaction. At this point, the current infrastructure was at cow capacity. It was difficult to effectively manage the feedpad and any grazing with cow numbers beyond 800.

Another area the business identified for improvement was making the farm more staff friendly. A more consistent workload for staff and allowing time for Brendan to get time away from the farm was the aim.

In essence, the farm was on the verge of implementing a Total Mixed Ration (TMR) production system, with less than 20% of the milking cows' diet being sourced from grazed pasture. However, a lack of adequate infrastructure was available to support a transition to TMR. The system was proving difficult to manage due to frequent exposure to adverse weather conditions such as heavy rain and extreme heat, and staffing issues.

The planning process for constructing the loose housing facilities

When Brendan initially approached the owners of Allanby Pastoral with the idea of transitioning to a TMR production system with housed cows, they displayed a lack of interest. However, the owners established criteria for the business to fulfill to proceed with the construction of new loose housing facilities: the business had to be debt-free, a \$1 million deposit for the new loose housing facility had to be secured, and a compelling business case had to be presented to justify the investment.

Undeterred, Brendan dedicated nearly a decade to conducting thorough research on the design, risks, and profitability of housing cows. His efforts included numerous visits to farms already operating housed cow systems, enabling him to gather valuable insights and firsthand knowledge. Additionally, Brendan took on the responsibility of educating the owners and their bank manager about the benefits of housed cow systems.

In February 2021, Brendan took a significant step forward by submitting a planning permit. This permit included effluent plans for the proposed loose housing facilities, ensuring compliance with environmental regulations.



Invest phase

The infrastructure plans for housing cows at Allanby Pastoral consisted of three separate loose housing facilities, each capable of accommodating 500 cows (total capacity of up to 1,500 cows in containment at any given time). To date, two loose housing facilities with a compost bedded pack for 500 cows each have been constructed, with the first facility occupied in July 2022, and the second facility in September 2022. While the concrete lane leading to the third facility has been completed, its construction is slated for a later stage once the debt has been repaid for the first two facilities.

The loose housing facilities are equipped with compost bedding composed mainly of wood chips and manure. A concrete feeding alley has been strategically built on the south side of each facility. This decision was made after careful observation of other loose housing facilities, which revealed that the compost bedded pack on the south side often became excessively wet. By incorporating a concrete floor in this area, the rest of the facility can remain drier. As a result, it was necessary to allocate a slightly larger space to each facility relative to the number of cows housed to ensure their comfort.

Furthermore, the loose housing facilities feature a runoff area on the north side, allowing the cows unrestricted access when conditions are not excessively wet. The design and management approach of the housing facilities were chosen for their simplicity compared to alternative options, such as a sand base, and to minimise the number of moving parts. Brendan, in particular,

emphasised the importance of building the loose housing facilities in an east-west direction. This orientation helps to reduce sun exposure during the summer months, as cows can move from one end of the facility to the other to seek shade. Additionally, it allows the lower winter sun to penetrate most of the bedded pack area.

The total cost to build the two loose housing facilities, including the effluent systems and concrete laneways, amounted to approximately \$5,000,000, with labour costs accounting for around \$500,000. Fortunately, Allanby Pastoral already possessed much of the machinery required for the transition to the loose housing facilities, as they were already feeding a PMR. However, additional machinery (a total cost of \$598,000) had to be acquired in order to facilitate the move.

Operate phase

Upon moving into the loose housing facilities, the feed intake lifted immediately, increasing from 21 kg of dry matter (DM)/cow/day to 25 kg DM/cow/day. Subsequently, milk production rose from 2.1 kg of milk solids (MS)/cow/day at a Margin Over Feed Costs (MOFC) of \$12.79 per day (using December 2023 prices) to 2.55 kg MS/cow/day at a MOFC of \$16.13 per day (December 2023 pricing), translating to an annual increase from 640 kg MS/cow to 710 kg MS/cow.

To mitigate business risks related to feed market exposure, the farm aims to maintain a minimum of 12 months' stored feed, equivalent to about 4 t DM/cow, in addition to 1,000ML of water carried over annually.

Despite the transition to TMR, the farm's labour force remains relatively stable, with 7.4 full-time equivalents (FTE), including Brendan. Contractors are minimally used for silage making, some sowing, and some tillage. Allanby's labour use efficiency stands at 86,629 kg MS per FTE, surpassing the Dairy Farm Monitor Projects (DFMP) average of farms in the northern irrigation district of 54,874 kg MS/FTE.

While it's still early in the implementation of the new system, the farm anticipates a payback period for this significant investment ranging from 5 to 10 years.

Farm performance – First full year in loose housing facilities	Allanby 2022/23	TMR Farms ¹ 2022/23	DFMP Farms ² 2022/23
Feed costs (incl inventory changes)	\$5.42/kg MS	\$5.55/kg MS	\$4.48/kg MS
Homegrown feed cost	\$257/t DM	n/a	\$193/t DM
Cost of production including inventory changes	\$7.77/kg MS	\$9.84/kg MS	\$7.73/kg MS
Earnings before interest and tax	\$1.93/kg MS	\$2.16/kg MS	\$3.07/kg MS
Return on total assets	6.2%	7.5%	8.3%

¹ Average of 14 Victorian and NSW Total Mixed Ration (TMR) farms.

² Average of 24 northern Victorian Dairy Farm Monitor Project farms. (Source: Economics of Total Mixed Ration dairy feeding system - where are the risks?).

Allanby Pastoral's strategic move to loose housing facilities proved crucial during the wet spring of 2022 and Campaspe River flooding. The elevated heights of the loose housing facilities and dairy, coupled with a levee bank around the feed storage area, prevented critical infrastructure from being submerged. This foresight allowed the farm to continue operations, ensuring the cows remained dry, milked, and fed. Had it not been for the crucial infrastructure staying dry, Allanby Pastoral would have faced the necessity to halt milking operations and evacuate the cows. Such circumstances would have likely resulted in Allanby Pastoral converting into a cropping farm.



What would you do differently?

Things they would likely do differently, with the benefit of hindsight, in terms of planning and building the new loose housing facilities:

- Engage the electricians via a quote instead of an hourly rate, as this cost area ended up much higher than expected.
- Ensure the bank has a better understanding of why and what they were doing earlier on to facilitate a smoother finance process.

Key messages Brendan has for anyone considering transitioning to a housed facility are:

- Do your planning thoroughly.
- Be cautious of sales pitches and avoid unnecessary upselling; invest only in things that are truly needed.
- Understand what would work for you, not just what has worked for others.
- Acknowledge that effluent planning may be more challenging than anticipated; obtaining approval may take time (approximately 6 months in their case).

The owners, with their extensive project management experience, successfully navigated challenges and kept the project moving. Without their expertise, the need for a project manager would have been crucial.

Where to from here?

Allanby Pastoral have plans to build a third loose housing facility but not until they pay off the first two facilities and have built up a big enough deposit (around \$500,000) for the additional loose housing facility.

In addition to building a third loose housing facility, other infrastructure investments Brendan would like to make include:

- Feeding Kitchen:
 - A shed for storing commodities (such as almond hulls)
 - A grain shed and silos, including a disc mill.
 - Currently, all the grain fed to the cows is stored at the dairy. They are using a machinery shed for some byproducts, and the silage is stored on the ground on a gravel base.
- Maternity Facility:
 - Specifically designed for lead feeding and calving cows.
- Concrete for Silage Storage:
 - This is a lower priority and may not be addressed for an extended period



Farm characteristics

Effective Farm Size (ha)	472
Milking Area (ha)	0 – all cut and carry
Pasture/Cropping areas (ha)	<ul style="list-style-type: none"> • 150 ha of maize silage • 150 ha of white sorghum for whole crop silage • 240 ha of vetch for silage (double cropped) • 80 ha of Italian ryegrass for grazing by the young stock. • 72 ha of cereal grown for silage. • 60 ha lucerne (to be sown in 2024)
Annual Rainfall (mm)	445
Irrigation	<ul style="list-style-type: none"> • 452 ha flood irrigation, average use of 2,245 ML annually • 1,180 HRWS and 1,423 LRWS Goulburn 1A owned • 600–700ML of wastewater • 480 ML deep lead bore licence
Dairy type	60 Unit Rotary
Feed System & Infrastructure	<ul style="list-style-type: none"> • TMR 365 days of the year • Two 500 cow loose housing facilities with a compost bedded pack with a concrete feed alley on the south side of each loose housing facility fitted with a flood wash, sprinklers (to keep cows cool), fans and cow brushes.
Labour	7.4 FTE (incl imputed labour) 86,600 kg /FTE

Herd and milk production

Milking Cow numbers	<ul style="list-style-type: none"> • The system is designed to be milking 1,000 cows at all times. • The farm is currently milking 950 cows in December 2023
Breed	90% Holstein & 10% crossbred with average weight of 650 kg
Milk production	<ul style="list-style-type: none"> • 644,149 kg MS in 2022/23 (cows moved into loose housing facilities) • 657 kg MS/cow in 2022/23 and on track to average 710 kg MS/cow in 2023/24

For further information

Visit Dairy Australia webpage dedicated to **Intensive Farm Systems Economics**

Visit www.dairyaustralia.com.au and search 'National Guidelines Dairy Feedpads and Contained Housing'

Acknowledgement

Thank you to Brendan Martin for agreeing to share their insights and experience.