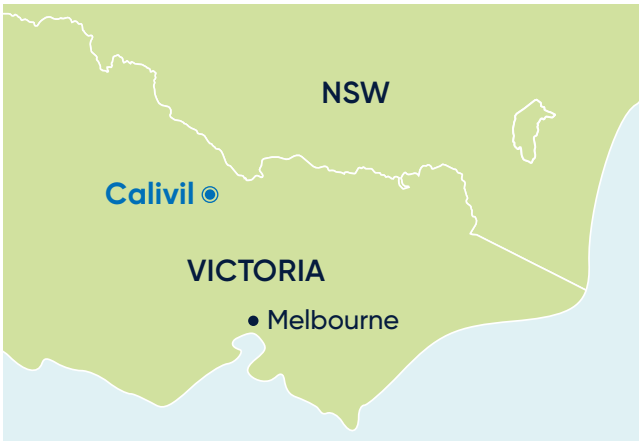
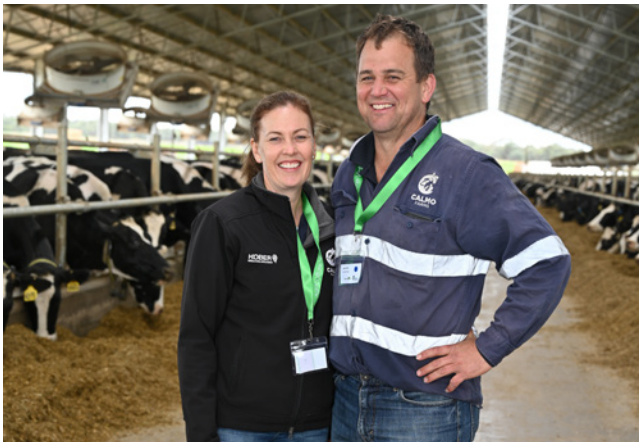
# Long-term planning for growth has led to the development of a freestall

## Jade and Belinda Clymo – Calivil, Northern Victoria – December 2023



### Overview

Jade and Belinda Clymo operate a profitable dairy business that has continually grown and evolved in northern Victoria. Their cow numbers had grown to the point that they could no longer economically graze pastures and crops. The distance the cows had to walk, the damage large herds made to the paddocks and other grazing-based infrastructure limitations led to the Clymos to consider an investment in either another dairy farm or develop a contained housing facility.

After running a hybrid Total Mixed Ration (TMR) system on a dairy dry lot and grazing for many years, plans were developed for a total of 4 housed facilities. Creating plans for future expansion was important to ensure there was room to scale up when conditions allow (i.e., planning approvals were in place and effluent system could cope). In 2020, the Clymos built a 1,060 freestall facility with sand bedding. In November 2023, they added a second freestall with the same specifications as the first. An open plan maternity facility was also designed and built to house 200 cows within 3 to 4 weeks of calving.

The Clymo's took a considered and long-term planning approach to support their dairy cow housing developments. Additional land and irrigation water entitlements were purchased, as a critical step to secure feed required for a TMR system. Thorough research of housing designs, including overseas trips and engaging an international designer, have addressed the limitations experienced in the grazing-based system while also allowing for future expansion and growth. Their successful adaptation to a housed cow system, characterised by considered planning have positioned them well for continued growth, success and sustainability in the evolving landscape of dairy farming in northern Victoria.

## Timeline

Consider | Invest | Operate

**1995**
- Jade started working in the family business milking 300 cows

**2006–09**
- Shift from perennial pasture to fodder crops and annual pastures

**2012**
- Built first basic feedpad

**2013**
- Started to research housed cow facilities and systems

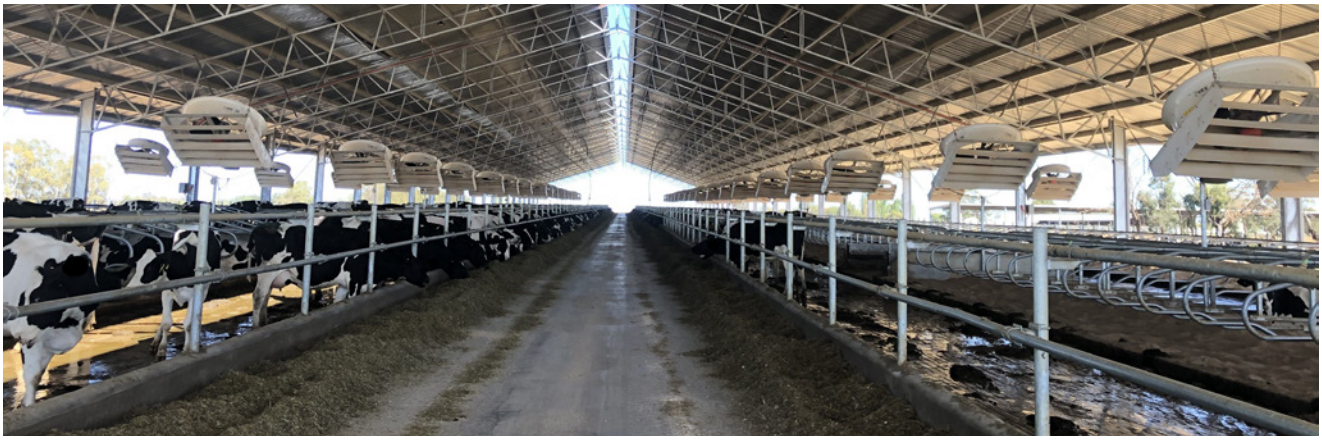
**2015**
- Purchased additional land which resulted in them being able to grow roughly double the amount of feed

**2017**
- Built a dairy dry lot and started feeding a TMR to the cows for some of the year (still grazed annual pastures when available)

**2019**
- Planning submitted for 4 x 1,060 cow freestall housing facilities

**2020**
- Operate 1 x 1,060 cow freestall facility

**2023**
- Operating 2 x 1,060 freestall facilities and 1 x 200 cow loose housing facility for cows within 3–4 weeks of calving
- Developing plans to build new dairy in 2025



## History

Jade has been dairy farming since the mid-1990s, when the farm was milking around 300 cows, and has gradually taken over the management of the business from his parents Trevor and Jan. Since 2014, Jade's wife Belinda has taken an active role in the business and today manages the office side of the business.

The 2002 drought was the beginning of the farm considering an alternative path to the traditional grazing-based system common on northern Victoria farms. Parking cows on other farms in 2002 and again in 2006 prompted the Clymos to consider a farming system where droughts would not require them to take such drastic action.

### Production system prior to transitioning to the freestall

The Clymos have been using a feedpad for over a decade, and around 2016 they built a dairy dry lot which consisted of a gravel feedpad with concrete troughs and a shade shed.

As cow numbers continued to grow, and frequent droughts and high water prices kept hitting the region, the Clymos purchased additional land and water to help secure the feedbase. While they didn't know the exact details of what they would build, they knew that they would end up building some sort of TMR system. They realised the importance of making sure they had enough resources available to grow most of the feed needed themselves.

## Consider phase

In 2013, the Clymo's started to consider if a housed system would be a better fit for their business. The main reasons and consideration for a housed facility were to:

- **Address limitations of a grazing-based system** – the farm was experiencing challenges with growing cow numbers, droughts and wet conditions in a pasture-based system. The cows were making a mess of the feeding areas, paddock and laneways, and were walking long distances. A housed facility would enable them to continue to grow cow numbers without the restrictions of a grazing-based system.
- **Improve staff conditions** – the business identified an area for improvement was making the farm more staff friendly. The housed facility would make it easier on staff by providing more consistent tasks and workload.
- **Farm in a way that suits the resources available to the business** – the housed facility would enable the business to continue to grow without having to set up a second dairy farm. More housing facilities could be built onsite, and a larger dairy constructed to accommodate future cow growth.
- **Increase yields and reduce reliance on irrigation water** – the new system would enable them to grow more from the dryland areas and improve yields from the irrigation areas. It would enable them to better set up the business to cope with drought years which result in high feed and water prices by being able to store multiple years' worth of feed and feed it back more efficiently, meaning they would be able to stay out of the elevated feed and water markets.
- **Lift feed conversion efficiency of the milking herd** – reduced feed wastage and consistent rations would essentially get more milk production from each kg of feed fed.
- **Improve ease of management** – they were already running a PMR and wanted to make it more efficient and easier to manage. The farm was on the verge of implementing a TMR production system, with less than 15% of the milking cows' diet being sourced from grazed pasture. However, a lack of adequate infrastructure was available to support a transition to TMR at the time. 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 freestall facility

Prior to constructing the freestall facilities, the Clymos first wanted to make sure they could grow enough feed to support the cows going into these facilities and to make sure they were choosing the best design for them. They purchased additional land in 2015 which nearly doubled their land area. The other key things they wanted to achieve with the investment was to be able to continue to grow cow numbers on the one single site and to not be affected by extreme weather, such as wet conditions.

Through lots of research, including trips overseas and to different areas of Australia to look at options, along with the help of an international designer they decided that a freestall facility would best suit their needs. They were able to determine that four 1,060 cow housing facilities could fit on the current site. While they currently only have the cow numbers to fill two facilities, they wanted to cater for future growth.

## Invest phase

After extensive research and consultation, in 2020, the Clymos built a 1,060 freestall facility with sand bedding fitted with sprinklers and fans to assist with keeping cows cool. The first facility became fully operational in November 2020 and the second 1,050 cow freestall in November 2023.

Each facility is 250 m long and 36 m wide and has a concrete feedpad with central feed ally fitted with a flood wash. The cows loaf on sand beds which are either fluffed or topped up each day. The cow lanes are scrapped, and flood washed to assist with waste management. The facility is fitted with a sand lane system to remove as much sand from the effluent system as possible to recycle back into the facility stalls.

The construction cost for first barn cost was around $3,500,000 of which around $500,000 was spent to set up the future facilities. While constructing the second housing facility, the Clymo's have also built a loose housing facility designed to house 200 cows. This maternity facility is open plan with a straw bedding and is for the cows that are within 3 to 4 weeks of calving. The combined construction cost of the second freestall and loose housing facility cost around $4,500,000.

An overseas designer was engaged through the entire process of designing and building all three facilities. The Clymo's think it is vital to have a good design that includes planning for future expansion and the designer is engaged through the whole process to help work through issues as they arise.

## Operate phase

Since the completion of the second freestall facility, 6 separate lactating herds are being run:

- Herd 1 – 2nd lactation plus cows that are 0-40 days in lactation (pre-joining) (180 cows)
- Herd 2 – 1st lactation heifers that are 0-40 days in lactation (pre-joining) (180 cows)
- Herd 3 – 40-100 days in milk (540 cows)
- Herd 4 – 100-200 days in milk (530 cows)
- Herd 5 – 200-300+ days in milk (510 cows)
- Herd 6 – Hospital herd (cows whose milk cannot go into the vat or are being treated for illness such as lameness) (40 cows).

All herds get the same ration, except for the feed refused from Herd 1 to 4 is fed to Herd 5 and 6. Feed refused by Herd 5 and 6 is fed to dry cows (which are run on a dry lot with concrete troughs and a shade shed). On average across the 6 herds, making up a total of 1,980 cows in December 2023, annual milk production is around 750 kg MS per cow.

All herds, except for young stock, are fed their entire ration from a mixer wagon alongside some grain fed in the dairy. The only grazing is by replacement stock and occasionally by dry cows.

The crop and pastures sown each year varies and depends on the cost of irrigation water, fodder reserves and cropping rotations. It is anticipated that they will require around 4,000-6,000 ML of irrigation water each year, but this can be significantly reduced in years when the water price is non-economical. If water price gets too expensive, more cereals will be sown at the expense of the annual pastures, the lucerne will be dried off over summer, and the maize may not get planted.

The Clymos primary strategy is to carry over around two years' worth of water and some fodder to manage the risk of high feed price years.

| Farm performance | Clymo 2022/23 | TMR Farms[1] 2022/23 | DFMP Farms[2] 2022/23 |
|---|---|---|---|
| Total feed costs | $5.15/kg MS | $5.62/kg MS | $5.07/kg MS |
| Homegrown feed cost | $327/t DM | $285/t DM | $205/t DM |
| Cost of production including inventory changes | $7.98/kg MS | $10.33/kg MS | $7.73/kg MS |
| Earnings before interest and tax | $1.62/kg MS | $1.67/kg MS | $3.07/kg MS |
| Return on total assets | 6.9% | 6.6% | 8.3% |

[1] Average of 8 northern Victoria Total Mixed Ration (TMR) farms.

[2] Average of northern Victorian Dairy Farm Monitor Project farms located in the northern irrigation district. (Source: Economics of Total Mixed Ration dairy feeding systems – where are the risks?).

## Advice for others thinking of doing something similar?

Jade's advice to others considering investing in housing cows are;

- The importance of doing your research thoroughly
- Consider many different options
- Make sure the business is ready (e.g. have your feedbase sorted)
- Engage the best designer you can find and use them all the way through the process
- Consider using a project manager
- Make sure you consider future changes and growth and make sure your designs can accommodate these.

## Where to from here?

When Jade and Belinda planned to build the first housing facility, they created plans to build 4 housing facilities of equal size (1,060 stalls). This was to ensure there was room for future growth, planning would be likely approved, and effluent systems could be scaled up to cope. The Clymos are unsure if or when the third and fourth barns will be built but wanted to ensure they had the option if the business decides to keep growing cow numbers.

Building more housing facilities and continuing to grow cow numbers would mean that they would also need to employ more staff. The Clymos feel that their current human resource systems, capabilities and infrastructure (housing) are already stretched with the current number of staff required. Being able to overcome these limitations around human resources is the biggest hurdle they would need to overcome before they would consider building a third housing facility. They would also need to make sure that they could grow enough feed to support future housing facilities before committing to building them.

With an eye for the future, the Clymos are considering upgrading the dairy, feeding TMR to young stock and reviewing calf rearing facilities. The dairy is ageing (29 years old) and, at 50 units, is near capacity for any further growth in cow numbers. Plans to build a new dairy in 2025 are underway. Research on the feasibility and what infrastructure they would need to enable them to feed all the young stock on a TMR all year round is being considered. The calf rearing facilities (that are on another farm) are also being reviewed to see what will be required to handle future needs.

| Farm characteristics | |
|---|---|
| Effective farm size (ha) | 1,112 |
| Grazing area (ha) | 300 – Grazed by young stock |
| Pasture/cropping areas (ha) | • 320 ha maize silage<br>• 220 ha lucerne (conserved, not grazed)<br>• 300 ha Italian ryegrass<br>• 326 ha vetch<br>• 266 ha cereal dryland (fodder) |
| Annual rainfall (mm) | 397 |
| Irrigation | • 846 ha flood irrigation, average use of 4,000 ML annually<br>• 2,729 HRWS and 702 LRWS Goulburn 1A owned<br>• 130 ML bore licence |
| Dairy type | 50-unit rotary |
| Feed System & Infrastructure | • TMR 365 days of the year.<br>• Two 1,060 cow freestall facilities with sand bedding with a concrete feed alley in the middle of each barn fitted with a flood wash, sprinklers (to keep cows cool) and fans. A 200 cow loose housing facility with compost bedded pack for cows within 3–4 weeks of calving. |
| **Herd and milk production** | |
| Milking cow numbers | The farm milked 2,164 cows in 2022/23 |
| Breed | Holstein with average weight of 675 kg |
| Milk production | • 1,456,030 kg MS or 673 kg MS/cow in 2022/23<br>• On track for 750 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 Jade and Belinda Clymo for agreeing to share their insights and experience.



This project was made possible by funding and support from Agriculture Victoria, Dairy Australia, New South Wales Department of Primary Industries and Dairy UP. Dairy Australia acknowledges the funding contribution of the Commonwealth Government for eligible research and development activities.



Dairy Australia Limited ABN 60 105 227 987
E enquiries@dairyaustralia.com.au
T +61 3 9694 3777
F +61 3 9694 3701
**dairyaustralia.com.au**

1338