



**Ray Smith**

Yarrimbah

Mathoura NSW

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**Local climate**

*BOM Historical Data – Mathoura State Forest*

Mean Monthly Max Temp °C  
(Nov – Mar)

**40.8 – 44.7°C**

Mean no of days/year above 35°C

**24.3**

Mean no of days above 40°C

**3.9**

Mean daily solar exposure

**17.7 Mj/m2**

Mean annual rainfall

**442mm**

*Mostly in winter*

Av Max Monthly 9:00am Relative Humidity%

**Above 80% May-Aug**

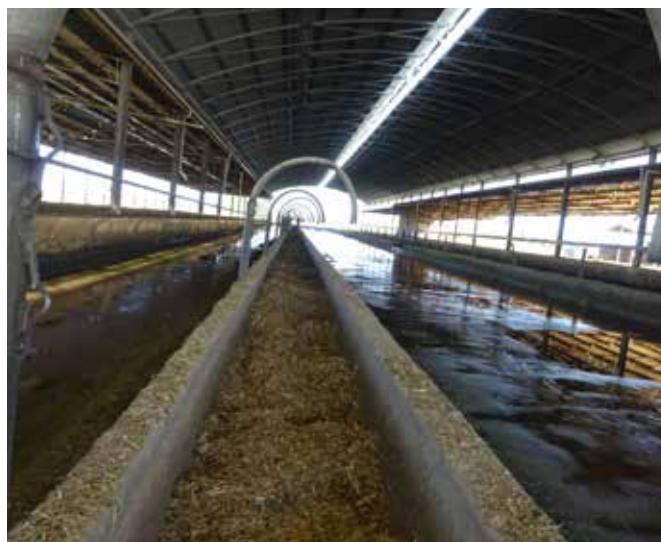


Your Levy at Work

**COMPOST PACK BEDDING COW SHELTERS**

# Double sided compost barn

with concrete internal feed lane  
and alleyways



*Ray's farm was visited 16th May 2018 and the results are a summary of Ray's interview and observations made during the site visit.*

## Background

Ray and his family operate a 4,000ha wheat/canola cropping and dairy farm in Southern NSW. They milk 750 cows and supply milk year round. The Holstein Friesian herd is averaging 10,000 litres/cow/year and 2.4kg solids/cow/day. Cattle graze pasture and crops, and are fed a PMR, which is based on home grown corn silage and grain. Cows are milked twice daily in a 50-stand rotary dairy and they also use a claw back-flushing facility.



## Reason to build the shelter

The main reason to build was to help shelter the cows from wet weather in the winter, protect pastures in the winter, shelter cows from the heat during summer as well as improve cow handling ability and improve cow comfort and cow health.



## Shelter utilization

All the milking cattle graze most of the year and utilize the compost pack and PMR at night time. In wet weather, they will use it fulltime and also during hot daytime periods during summer. In summer, cows are generally grazing sorghum in the morning and are back in the shelter for the afternoon and at night.

## Construction

The 200m X 80m shed is approximately 10 years old and was converted from a feedpad. Running along the length of the shed and on each side, there are 12m wide compost bedding packs on a packed sand base, 4m concrete feed alleys, concrete feed troughs and a 7m central concrete feeding lane. The pack is surrounded by a 500mm concrete wall. The cattle enter the compost packs from the ends only, as the pack is 500mm higher than the feed alley. A flood wash system cleans the feeding lane and feed alleys. Mistifiers are fitted over the concrete alleyways and no fans have been installed.

The shed is built in an East – West orientation, mainly for convenience, but also to avoid wetting of the pack in Easterly driving rain. Eave height is approximately 4.5m and middle roof height approximately 7m. No sunlight enters the pack.

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# Costs

## Capital costs

Difficult to estimate, as was self-built over time.

## Replacement Cost

\$1.2m

## Operating costs

Tilling equipment cost plus 0.5 - 1 hr labour/day to till.



## Operation

Ray believes that pack management is critical, with the pack being tilled once to twice daily with a vertical rotating finger rotary hoe, creating a light fluffy pack that is composting well and hot underneath. Bedding is removed and replaced with new rice hulls if the pack feels wet, or is getting too deep.

Rice hulls are available locally and approximately 500 - 700mm form the compost bedding pack.

Ray tried woodchips, sawdust and wood shavings, but found that they

compacted too hard and he is happy with rice hulls which are available in the area. In dry weather, the cows have the choice of using loafing paddocks or compost bed at night, with about 50/50 usage.

The removed bedding is mixed with manure solids from the loafing areas and composted in rows (turned), then contract spread on crops. Wet patches at the ends are replaced more often.

Flood wash water is used to fertilise/irrigate pasture.

Bedding is removed and replaced with new rice hulls if the pack feels wet or is getting too deep.

## Issues

During wet periods, the cattle bring in mud onto the compost packs, making the end 10m of each pack quite wet.

This has not caused serious issues, however, Ray is intending to have a larger concrete apron from the feed alley to the compost packs. This can be cleaned and will minimise the transfer of mud onto the pack. Lameness, mainly footrot, occurs sometimes due to wet weather and cattle using laneways to access pasture.

Cattle still suffer some heat stress on days when temperatures rise above 40°C in summer, even though humidity is low. Ray is considering installing fans over the feed alley and/or over the packs to limit high cow heat loads.





## Outcomes

The barn allows better maintenance of winter pasture, better pasture use efficiency, increased cow comfort, cooler cows during summer, shelter in some winter periods and lower BMCCs, which is now always below 120. The cows are always clean. The extracted pack material is great fertiliser for crops. Clinical mastitis cases, mainly in winter, have dropped from 10-20/month to 1-2/month since using the barn.



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### FOR MORE INFORMATION

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