



# Assessing Economic Benefits of Confinement Feeding – confinement feeding ewes, wa\$ it worth it?

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## BACKGROUND

Stirlings to Coast Farmers (SCF) participated in a 2-year MLA Producer Demonstration Site (PDS) project from 2022-2023, which demonstrated 6 (3 each season) active sheep confinement feeding systems within the Stirlings to Coast Farmers membership base.

The economic value of confinement feeding sheep has been hard to quantify for producers in WA, especially when systems and producer’s strategies are highly variable. What we did know going into this project, however, is that local farmers are often impacted by late seasonal breaks which affect the establishment of pastures in the region. This can be from either a lack of rain or too much of it.

Confinement feeding can remove early-season grazing pressure to aid pasture growth and establishment. Producers can also maintain stock numbers through the autumn feed gap, maintain optimum ewe condition scores and thus lamb survival and thrift by implementing confinement feeding.

The overall purpose of the project was to generate data from varying confinement feeding set-ups in the region so that the economics of each scenario, in terms of stock energy requirements, supplement wastage, labour costs, stock feeding times, infrastructure costs and pasture growth, could be collated to better inform farmers decisions.

***“I would have sheep in 2 big mobs and be rotating them around pastures by April if I did not have a confinement set-up”*** (Clare Webster, Kendenup)

## OUR HOST FARMERS

Six producers took part as demonstration hosts in the SCF-led project, three in 2022 and three in 2023. Table 1 describes details of each operation and confinement set-up.

Note: All producers were supplying fresh water through water troughs situated in each individual pen.

Producer	Details
Jeremy Walker, Green Range	A 2400ha mixed farm running a merino flock. 4179 ewes were confined for 41 days, March-mid May 2022, feeding a full mixed ration and ad-lib hay, three times a week into a communal feed trough.
Clare Webster, Tenterden	A 2500ha mixed farm running a self-replacing merino flock. 2100 head were confined for 56 days, April until mid-June and another 2277 head were confined for 76 days, April to end of June 2022. Ewes were trail fed a lupin-barley-oats mix that had been treated with ‘Home n’ Dry alkasystems’ product and ad-lib hay, three times a week.
Jason Griffiths, Gairdner	A 7500ha mixed farm running a self-replacing merino flock. 600 head were confined for 25 days and 1400 head were confined for 43 days, from the start of April until mid-May 2022. They were fed a grain mix daily into fence mounted troughs in each pen. Ad-lib straw was given three times a week.
John Howard, South Stirlings	A 4800ha mixed farm running a 70% cropping enterprise with a Merino and Dohne flock. 1740 ewes were confined for 19 days, from end of May until mid-June 2023. Ewes were rationed pellets daily, via mounted troughs on each pen. In addition, barley hay and calcium lick blocks were placed on the ground in each pen 4 times a week.
Greg Hyde, Ongerup	A 5600ha mixed farm running 73% cropping enterprise with a self-replacing Merino flock. 1500 ewes were confined for 28 days, from the end of April till the end of May 2023. Ewes were fed pellets into communal troughs twice a day, whilst adding barley straw on the ground to each pen three times a week.
Mark Zadow, Kojonup	A 1431ha mixed farm running a 41% cropping enterprise with Merino and Dohne flock. 7410 ewes, ewe lambs and wether lambs were confined for 76 days, from mid-April until late-June 2023. Sheep were trail fed barley and lupins three times a week, in addition, they added lime and salt mix into half tires and fed barley straw on the ground in each pen once a week.



***“We choose to confinement feed to give the emerging pastures the best possible chance to establish and build up prior to stocking with livestock. Confinement feeding is a more professional way to monitor livestock when supplementary feeding, and we get better value out of the supplementary food.”*** (Piers Roberts, South Stirlings)

## THE ECONOMICS

Overall, host producers’ livestock enterprises were benefited as confinement feeding allowed stock to be monitored more closely and hence managed more optimally. Participating host producers were able to follow an optimal nutrition profile that maximised the trade-off between feed costs and reproduction. In addition, they had a better ability to maintain paddock groundcover, reducing erosion risks and maximising rain infiltration.

All these benefits aside, setting up confinement feeding did come at a cost. Particularly, in infrastructure set-up and feed costs. As a result, the economic benefits of confinement feeding, although profitable in all cases, varied from farm to farm and season to season. For those looking to go into confinement feeding, it may be less profitable if your stocking rates are low as early-season pasture growth is less limiting.

As well as seasonality and stocking rates, when looking at the economics of confinement feeding other factors such as external markets, time of lambing, pasture area, grazing management prior to adopting confinement feeding, confinement set up and confinement period should all be considered.

An economic analysis was conducted for all 6 PDS sites and factored in all of the above aspects to better understand the influence of these factors on the profitability of confinement feeding.

Performance Metrics in Confinement	Producer 1	Producer 2	Producer 3	Producer 4	Producer 5	Producer 6
Condition score in	2.8	2.7	2.6	3.3	4	2.8
Condition score out	3	3.1	3	3.4	4.2	2.8
Reduced feeding time	35%	75%	54%	61%	50%	30%
Labour efficiency gains (hrs/week)	10.75	16.4	24	11	3.75	3.75
Hectares deferred (ha)	960	550	570	350	274	851
Pasture production gains (kg/DM/ha)	64	67	241	410	350	1507
Energy efficiency gains (mj/d/head)	0.8	0.76	0.73	0.78	0.8	0.76
Mortality rate reduction	1%	0.50%	no change	no change	no change	no change
Costs (-) and Benefits (+) in Confinement						
(-) Supplement/feed	\$0	-\$13,750	-\$30,591	-\$13,134	-\$16,940	-\$102,300
(+) Pasture deferment	\$19,034	\$19,449	\$32,376	\$26,101	\$25,150	\$126,797
(+) Labour reduction (@\$40/hr inc super & wc)	\$2,520	\$4,040	\$4,800	\$1,280	\$600	\$800
(+) Mortality reduction	\$739	\$369	\$0	\$0.00	\$0.00	\$0.00
Gross Margin	\$22,293	\$10,108	\$6,585	\$14,200	\$8,800	\$25,300
*Wgha - winter grazing hectares	\$3.6/DSE	\$3.4/DSE	\$1.0/DSE	\$1.14/DSE	\$0.83/DSE	\$2.3/DSE
*wc – workers compensation	\$23.20/Wgha	\$5.62/Wgha	\$11.90/Wgha	\$8.00/Wgha	\$5.80/Wgha	\$30.00/Wgha

\* NOTE: Producer order randomised



***“The cost of setting up a confinement feeding system and the feed costs involved pay out in the long run - it is going to give the farm more opportunities to get the best possible outcomes in achieving the best results out of the livestock operation. It will enable us to have a better whole farm approach and have timelier early-season crop and pasture growth.” Piers Roberts, John Howards worker, said.***

## LOOKING AT THE \$\$\$

Farm data collection was conducted to acquire crucial information about each farm's structure, including pasture area and stocking rate, to assess dollar benefits resulting from confinement feeding practices. This data served as the foundation for calculating the additional supplement requirements during confinement (accounting for factors such as waste reduction and the decreased energy needs of livestock in confinement), and labour efficiency gains associated with supplement feeding in confinement versus paddock feeding.

The economic analysis for each host farmer was conducted using the 'Australian Farm Optimisation (AFO)' model which allowed for a comprehensive whole-farm, whole-year feed budget, that considered the economic and biological aspects of pasture growth and quality, livestock energy requirements, farm management and stocking rates (Table 2).

The analysis showed that confinement feeding was profitable for all host producers participating in the project, varying in gross margin benefit from \$6,585 to \$25,300. Importantly, pasture deferment made up >95% of the economic value of confinement feeding. This shows that the economic value of confinement feeding is significantly linked to autumn and winter growing conditions, and confinement feeding before the break of season is less profitable because pasture is not being deferred.

The benefits of confinement feeding were primarily due to:

- Deferment of pasture paddocks resulting in increased leaf area and growth rates – increased pasture production.
- Increased energy efficiency of stock - reduces stock energy requirements by 8-15% (less walking for feed and water).
- Reduced supplement wastage (5-10%).

- Stock health and weight could be easily monitored, and sale stock more easily separated.
- Reduced labour (stock feeding) and cost of supplementary feeding.

After discussion with the host producers, there were some other factors, not included in the economic analysis, that increased the value of confinement feeding for producers, including:

- Benefits to the cropping enterprise where confinement allowed the cropping paddocks to be destocked earlier.
- Benefits to the livestock enterprise where confinement feeding allowed stock to be monitored more closely and hence managed more optimally i.e., following an optimal nutrition profile that maximised the trade-off between feed costs and reproduction.
- Maintained paddock groundcover, reduced erosion, and maximised early-season rain infiltration.

## FINAL THOUGHTS

This MLA-funded Producer Demonstration Site project really highlighted to producers in the Great Southern region of WA the economic value of confinement feeding. Going forwards, and particularly as farmers in our local region manage increasingly variable seasons, it will be an important tool to maintain the productivity and profitability of livestock enterprises.

