



PRODUCTIVITY & PROFITABILITY

series

Containment Feeding of Livestock

Dr Jillian Kelly, Animal Health & Nutrition Consulting



What is Containment Feeding?

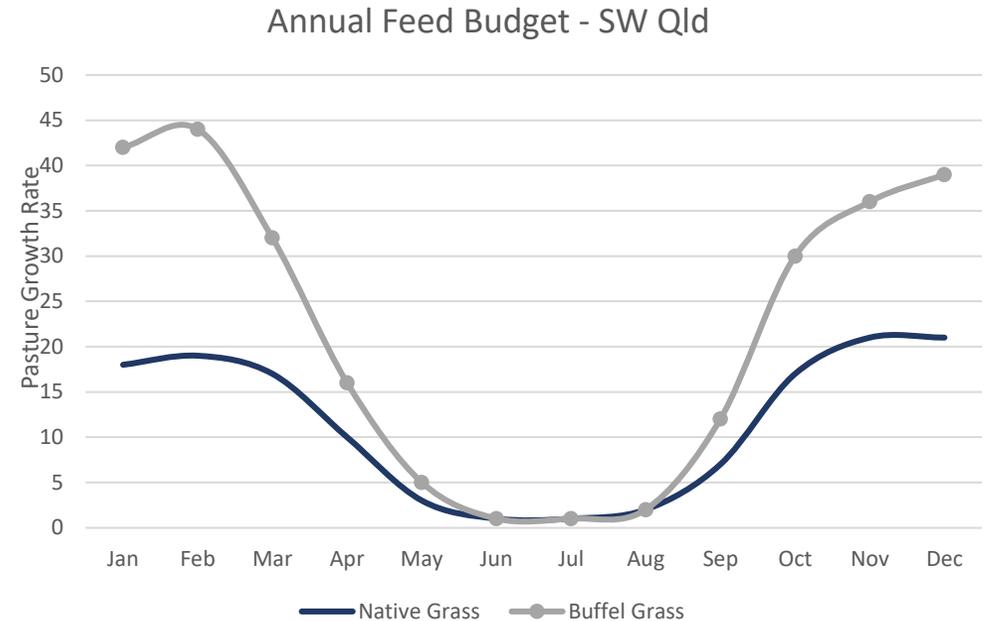
“a drought feeding practice that aims to promote animal health and welfare while preserving groundcover and land condition across the majority of the property”

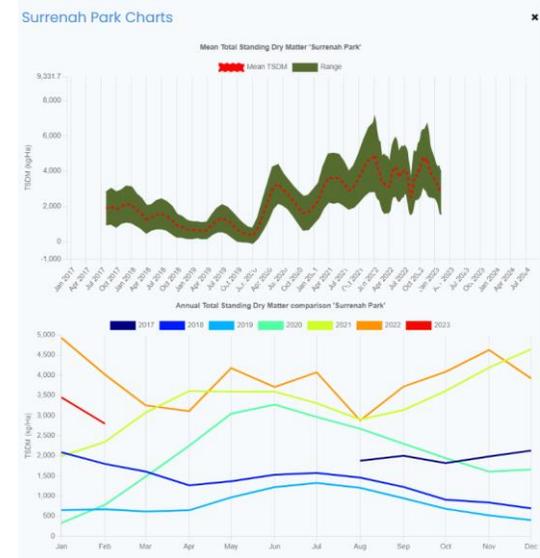
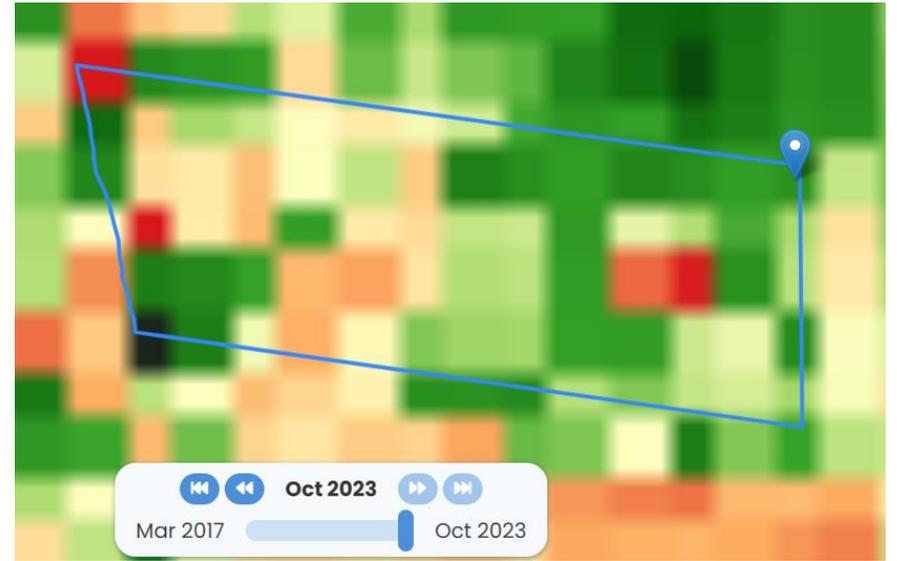
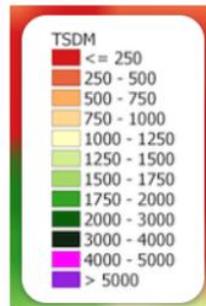
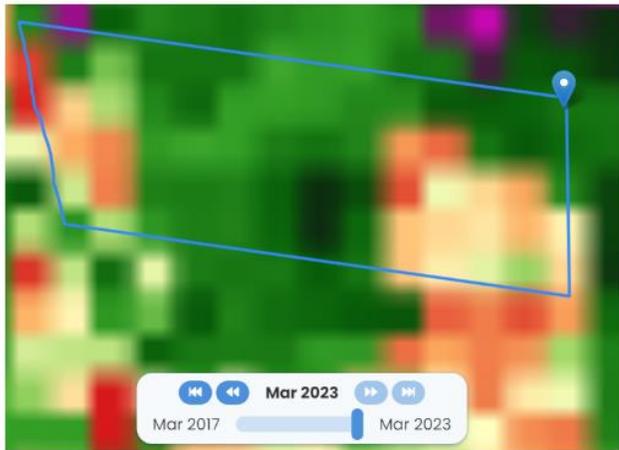
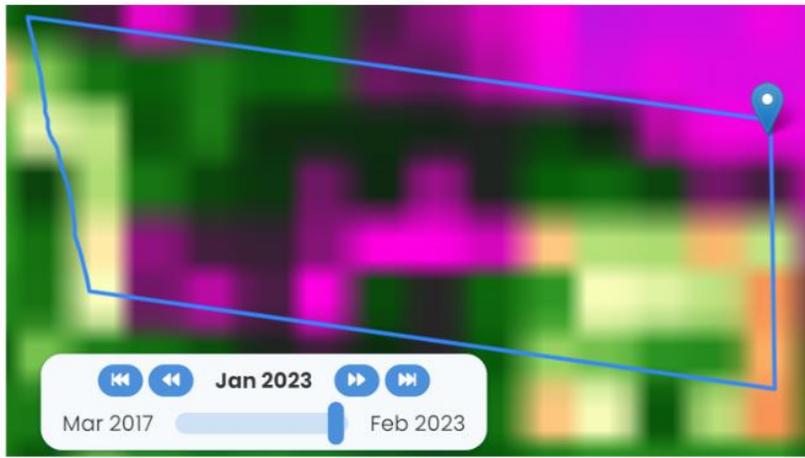


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Why Containment Feed?

- Reduce Grazing Pressure (SR)
- Conserve topsoil, ground cover
- Reduce Feed Requirements
- Reduce Labour Inputs
- Production Feed
- Early Wean
- Join
- Maintain good welfare & health





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Feeding Systems – Self Feeders



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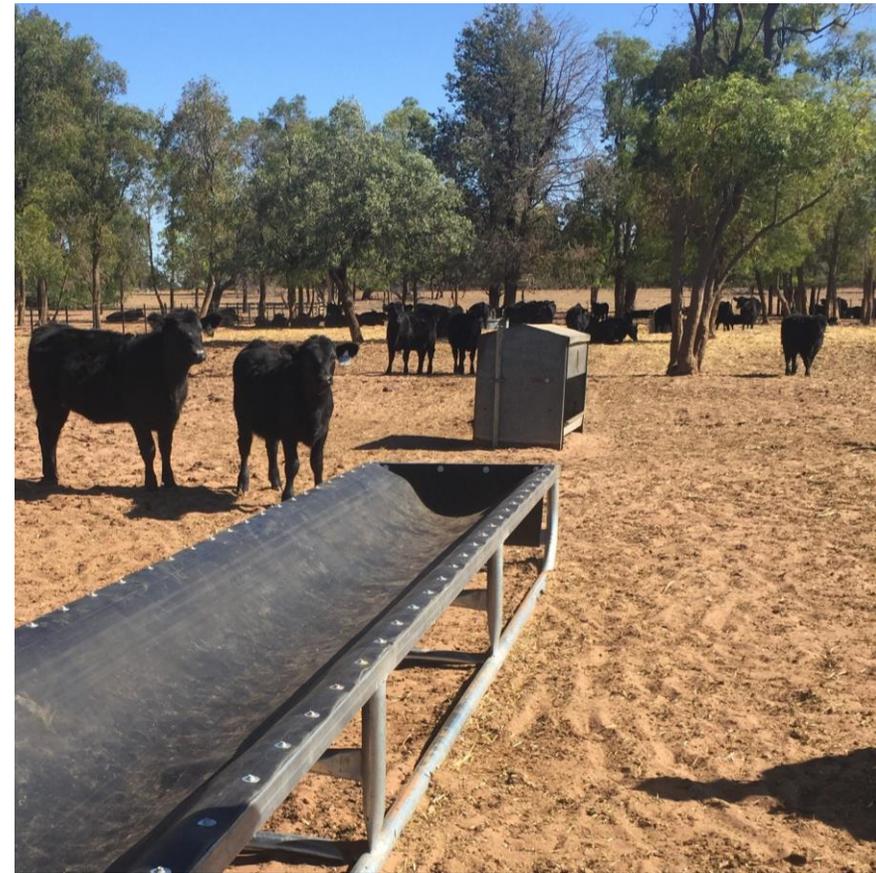
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Feeding Systems – Self Feeders



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Feeding Systems – Grain Trail



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Feeding Systems - Automated



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Feeding Systems - Automated

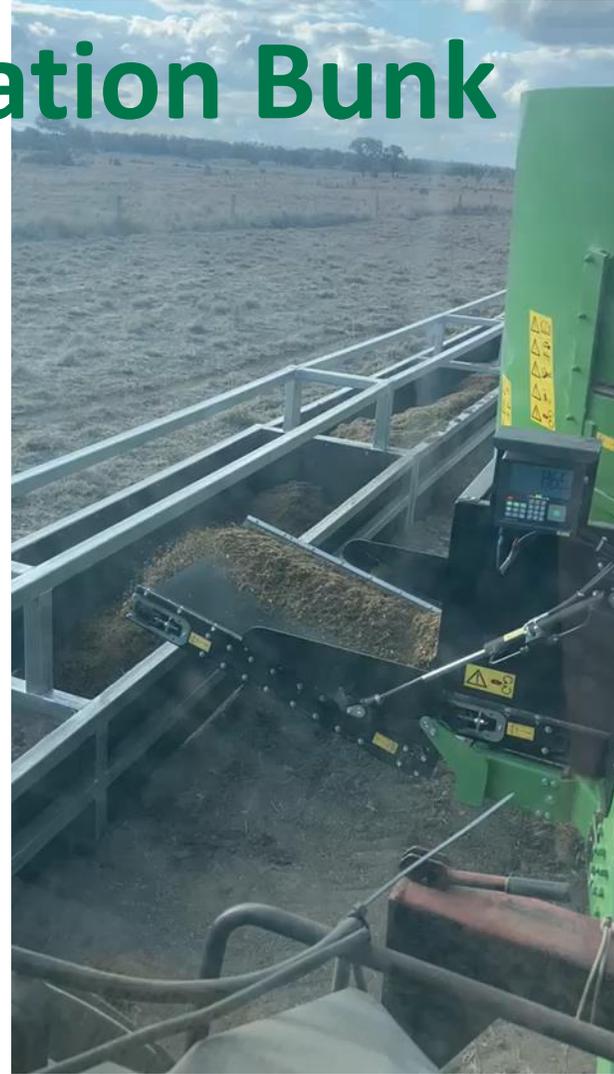


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Feeding Systems – Mixed Ration Bunk



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Establishment Considerations

- Stocking density
- Mob size
- Feed trough space
- Water trough space, flow rate
- Shade
- Site Selection (slope, drainage)
- Access to yards & feed storage
- Wet weather access
- Legislation



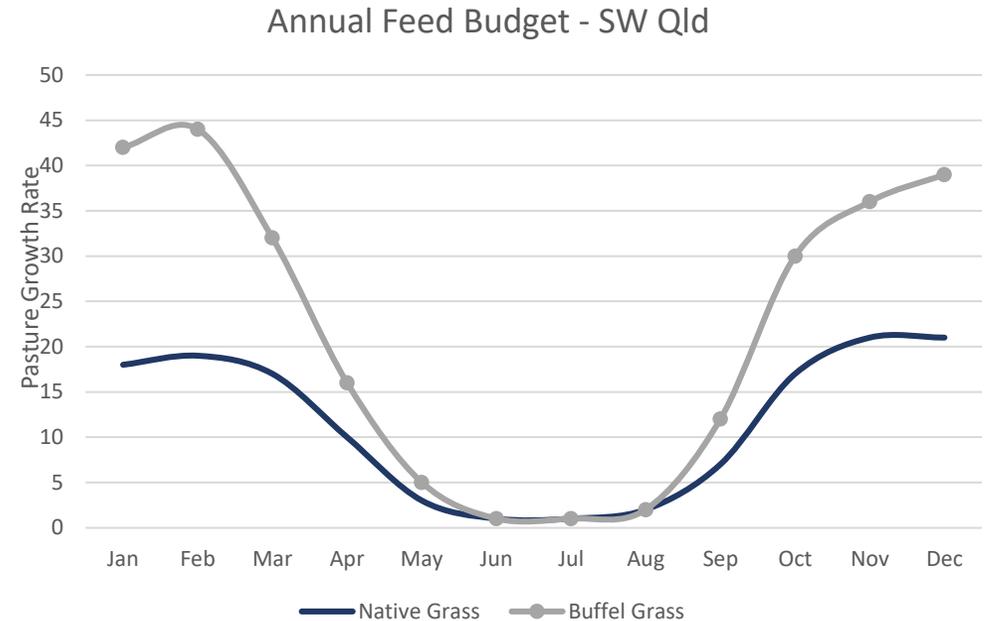
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Challenges

- Cost of establishment and feeding
- Quantity of feed required
- Disease risks
- Environmental impacts
- Labour requirement



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Do Your Sums!

Drought Feed Calculator

Wheat % as-fed
 Lupins % as-fed
 Barley (straw/stub) % as-fed

The mix must add to 100%. Total: 100 ✓

Results

Energy (MJ/kg DM)	12.35
Crude Protein % DM	15.1
Cost cents per MJ	3.44
Cost \$/kg Crude Protein	2.81
Cost \$ per tonne 'as fed'	382.02



Feed 1
 Feed 2
 Feed 3
 Mix
 Livestock

Drought Feed Calculator

Live weight (kg)
 Feed Option
 Feeding Period (Days)
 Number of Animals (hd)

Results

Daily feed amount 'as fed' (kg/hd/day)	0.90
Cost/hd/day (\$)	0.35
Cost/hd for period (\$)	10.36
Total feed amount for period 'as fed' (tonnes)	Wheat (56.95) Lupins (16.27) Barley (straw/stub) (8.14)
Total ration cost for period (\$)	31079

Feed 1
 Feed 2
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 Mix
 Livestock



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Steer/Heifer Budget 31.10.23

Number in mob	279
Buy In/Store Value (\$/hd)	\$ 500
Feeding period	60
MJ Maintenance	55
MJ Weight Gain/kg	34
weight	300

ONLY ADJUST FIGURES IN ORANGE CELLS

Ration	As Fed %		\$/tonne	\$/kg	DM	NDF	ME	CP	EE
	As Fed %	Dry Matter %							
Barley	50%	50%	\$ 430	\$ 0.43	90	16	12.8	10%	1.5
Barley Straw	24%	24%	\$ 300	\$ 0.30	90	80	5.5	3%	0.4
Lupins	24%	24%	\$ 440	\$ 0.44	90	22	13	34%	11
Feedlot Concentrate	2%	2%	\$ 1,181	\$ 1.18	95	0	5.5	80%	0
	100%	100%	\$ 416	\$ 0.42	90	32	10.9	15.6%	3.5
Metabolisable Energy MJ ME/kg	10.9								
Crude Protein (%)	15.6%								
Neutral Detergent Fibre (%)	32								
Dry Matter (%)	90								

Feed Required	Unlimited	Unlimited Quantity - As Fed Feed Requirements		
kg/head/day DM	11.1	kg/day	t/feeding period	
kg/head/day 'as fed'	12.3	Barley	1.72	103
kg/mob/day 'as fed'	3.4	Barley Straw	0.82	49
		Lupins	0.82	49
		Feedlot Concentrate	0.07	4
		TOTAL	3.44	206 tonnes

Gain	
Total MJ provided	121
Estimated ADG	1.95
Weight at end of feeding period (kg/hd)	417
Sale price (\$/kg LWT)	2.3
Value End Feeding Period (\$/hd)	\$ 960

Cost	
Ration \$/head/day	\$ 5.13
Ration \$/head/feeding period	\$ 308
\$/mob/day	\$ 1,430
\$/mob/feeding period	\$ 85,807
Vaccination \$/hd	\$ -
Drench \$/hd	\$ -
Animal Health other \$/hd	\$ -
Transport In (\$/hd)	\$ -
Transport Out (\$/hd)	\$ 20
Commission Buy (\$/hd)	\$ -
Commission Sell (\$/hd)	\$ 77
Machinery Feedout Cost (\$/hd/feeding period)	\$ 10
Machinery Feedout Cost (\$/tonne)	\$ 13
Interest Paid	\$ -
Labour Cost\$/hour	\$ 35
Hour\$/day	\$ 4
Labour Cost\$/hd/day	\$ 1
Labour Cost\$/hd/feeding period	\$ 30

SUMMARY PROFIT/LOSS	
Buy In Price	\$ 500
Cost Ration	\$ 308
Other Costs	\$ 97
Labour Costs	\$ 30
Sale Price	\$ 960
R HEAD PROFIT/LOSS	\$ 25

COST SUMMARY (\$/SHEEP)		
Purchase		20.00
Selling		10.79
Running		0.30
Labour		7.95
Feed		96.26
Fixed		0.00
TOTAL		135.31

PROFIT SUMMARY		
TOTAL INCOME	(\$)	345485
Total Costs	(\$)	405925
Net Profit - Total	(\$)	-60440
Income per head	(\$/head)	115.16
Costs per head	(\$/head)	135.31
Net Profit - Per Sheep		-20.15



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Livestock Management

- Vaccinate before feeding
- Imprint at foot
- Draft on bodyweight
- Remove shy feeders
- Redraft every month
- Take care with induction
- Clean troughs daily
- Check poo & stock health daily



Space

- Stocking density recommendations within confinement systems vary across states and range from 2-5 m² per head for sheep and 9-25 m² per head for cattle.
- Suggested mob sizes within confinement systems:
 - lambs maximum of 350
 - ewes, wethers up to 500
 - weaner cattle 50-100
 - cows, yearling cattle 100-200

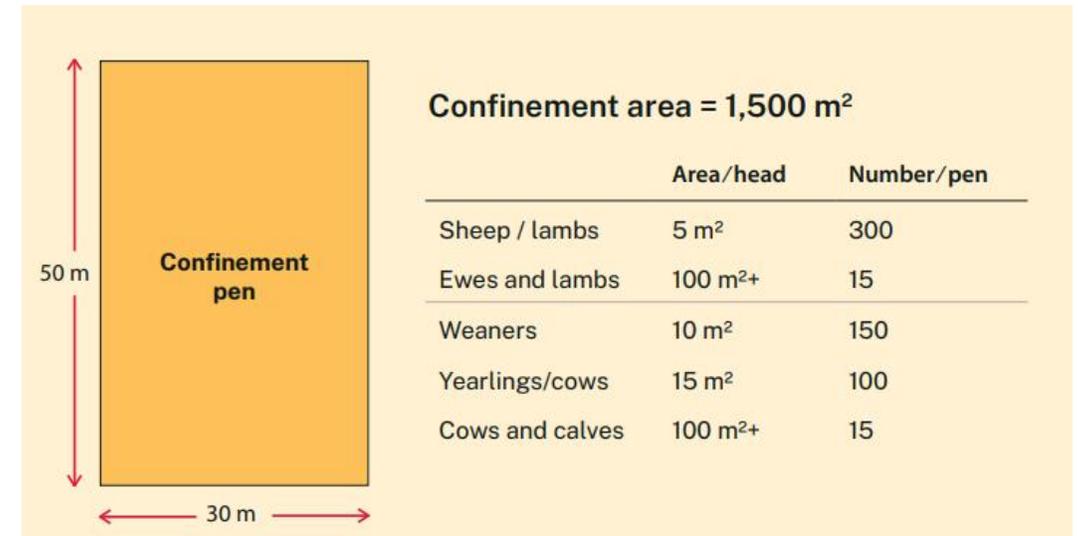


Figure 1: Feed troughing in the laneway and water located at the rear of the pen.

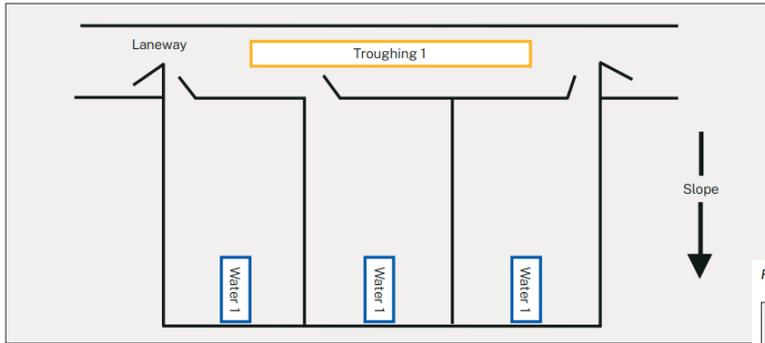


Figure 3: Feed troughing in each pen and water located at the rear of the pen.

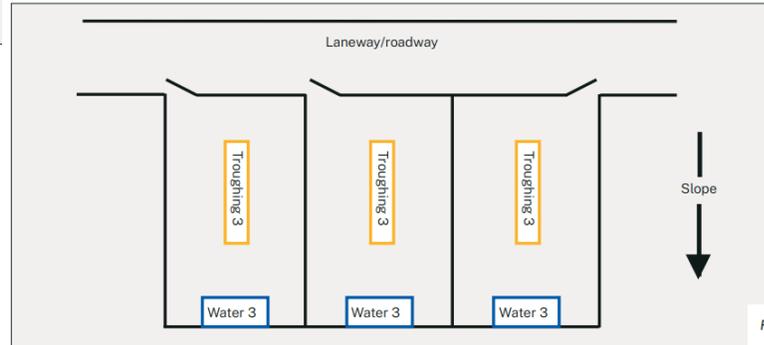


Figure 5: Pen design incorporating self-feeders.

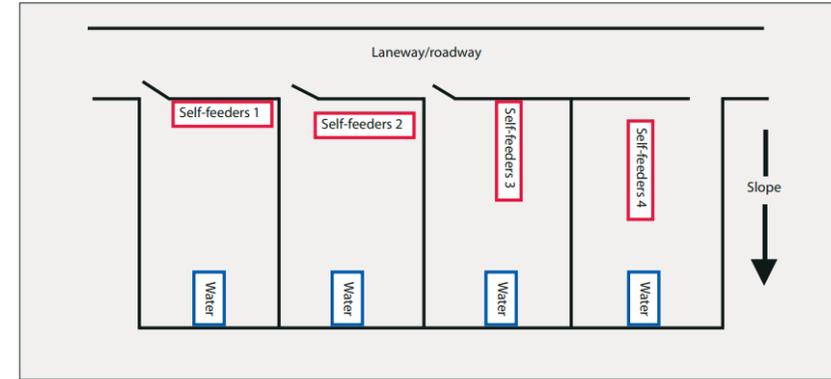


Figure 2: Feed troughing at the front of pen and water located in pen fence lines.

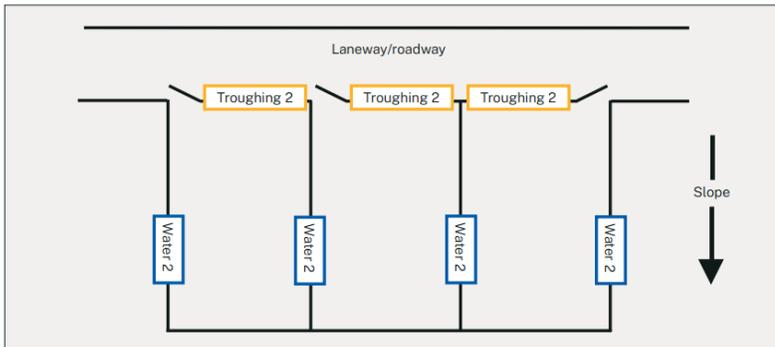
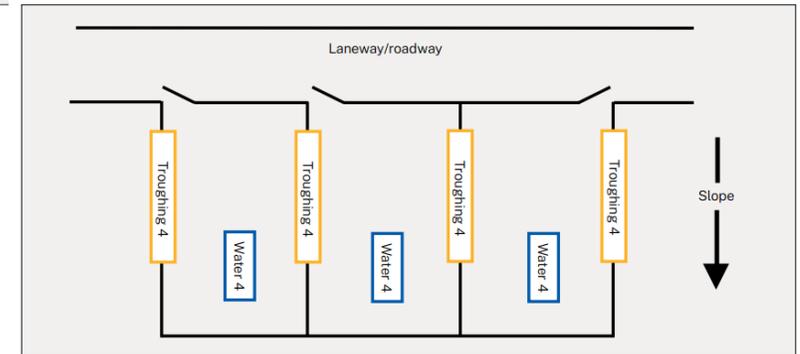


Figure 4: Feed troughing along the pen fence line in each pen and water located within the pen.



Space

Recommended trough space allocations (once-daily feeding) and specifications are:

- Sheep – 350-450 mm wide
 - double side access 15+ cm/head
 - single side access 30+ cm/head
- Cattle - 550-600 mm wide
 - weaners 30 cm/head
 - yearlings 40 cm/head
 - adult cattle 60 cm/head

Recommended self-feeder space allocations for rectangular feeders are:

- Sheep: 3-5 cm/head (100-120 head per 2.4 metre feeder).
- Cattle: 7-10 cm/head (50-70 head per 2.4 metre feeder).

Water trough space recommendations are:

Sheep

30 cm plus 1.5 cm per sheep

Example: 300 sheep

= 30 cm + (300 1.5 cm)

= 30 + 450 cm

= 4.8 m total lineal access

Cattle

30 mm/head and/or space for 10% of stock to access water simultaneously during normal weather conditions and 75 mm/head during hot conditions.

Example: 100 cattle

= 30 mm x 100

= 300 mm

= 3 m of linear trough space during normal conditions or 7.5 m during hot conditions



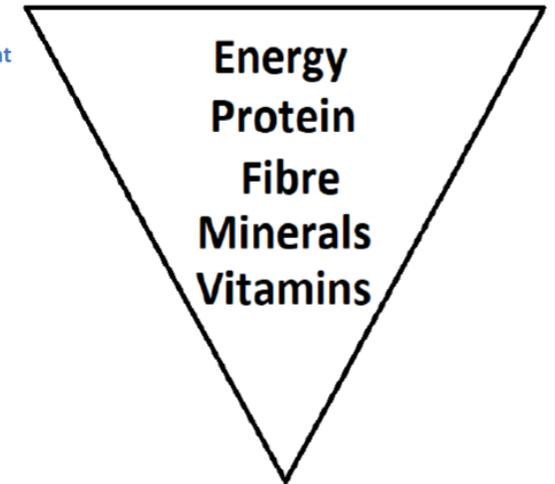
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Livestock Nutrition

- Example diet might be cereal grain + pulse + hay + vit/min
- NSW DPI Drought Feeding Calculator is great
- Sheep – process to match particle sizes
- Cattle – processing grains (cereal/pulse) important
- Rumen buffers
- Get some advice to get it right

Most important



Step 1: Is there enough MJ in the diet?

Step 2: Is the protein adequate?

Step 3: Is there enough fibre for

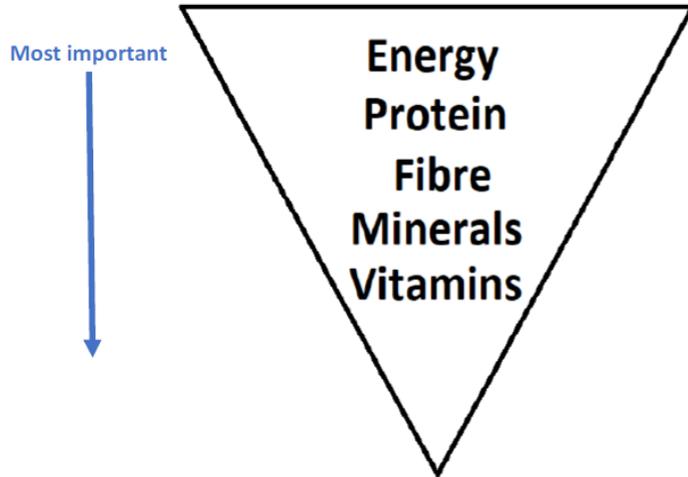
- rumen health
- comfort
- heat production
- acidosis prevention
- lactation?

Step 4: Are there enough minerals? In drought diets focus on...

- sodium
- calcium
- Ca: P ratio

Step 5: Are there enough vitamins?

- Does it contain Vitamin A & E?



Induction

- CRITICAL to success
- 10-14 days is best
- Trough out grain in a long trough
 - Enough space, similar body weights
- Everyone comes onto the trough
- Shy feeders are identified and put back onto pasture/hay
- Step grain up slowly over the 10-14 days
- Once, twice or three times a day feeding
- Start at low amounts of feed and step up slowly
- Any change in the weather, feed left on the ground or upset to the routine, go back a step
- Good quality hay, lime and salt, buffers

Imprinting while
on mum is VITAL
for success

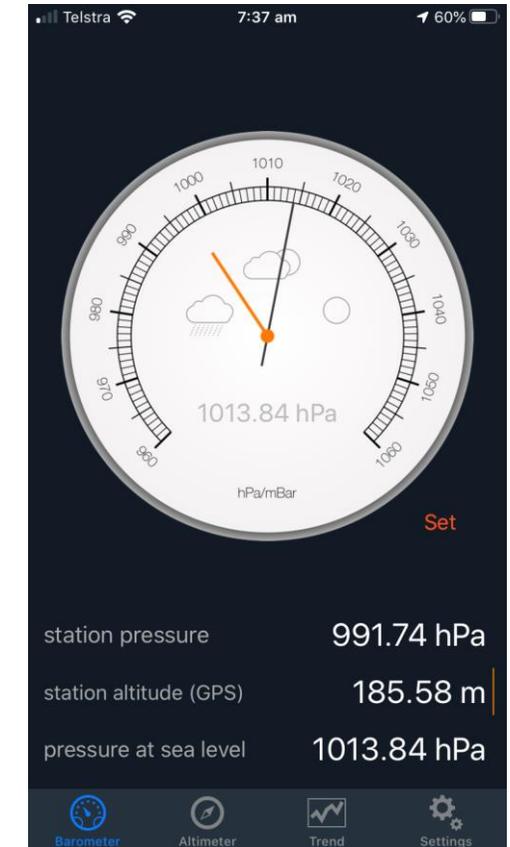


Animal Health Issues

“The Big 5”

- Acidosis
- Shy Feeders
- Hypocalcaemia
- Water belly
- Vitamin A deficiency

- Pulpy kidney, pneumonia, pink eye, scours, prolapses, PEM.



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Maintaining Breeders

- Restricting access to too much feed is the focus
- Managing condition score and “fitness”
- Play the long game – vitamins and minerals become important
- Can join well in confinement
- But...don't recommend lambing or calving in confinement
- YOUR mental health and lifestyle
- Keep setting decision points and making evidence based decisions



Take Home Messages

- Confinement feeding is a temporary, proactive management strategy to maintain livestock production and reduce grazing pressure.
- Confinement feeding areas can be low cost and versatile.
- Careful planning, attention to detail with regards to livestock management and nutrition is vital for success.



Tools & Resources

- Managing & Preparing for Drought Handbook

[dpi.nsw.gov.au/ data/assets/pdf file/0006/582531/Managing-drought.pdf](https://dpi.nsw.gov.au/data/assets/pdf_file/0006/582531/Managing-drought.pdf)

- Dry Times Smoko

[Dry times smoko – YouTube](#)

- Drought & Supplementary Feeding Calculator

[Drought and Supplementary Feed Calculator \(nsw.gov.au\)](#)

- A Guide to Confinement Feeding in NSW

[lls.nsw.gov.au/ data/assets/pdf file/0005/1431059/LLS confinement-feeding-booklet-web.pdf](https://lls.nsw.gov.au/data/assets/pdf_file/0005/1431059/LLS_confinement-feeding-booklet-web.pdf)

