

meatup FORUM

For the latest in red meat R&D

Putting the precision into lambing

Tim Leeming
Paradoo Prime

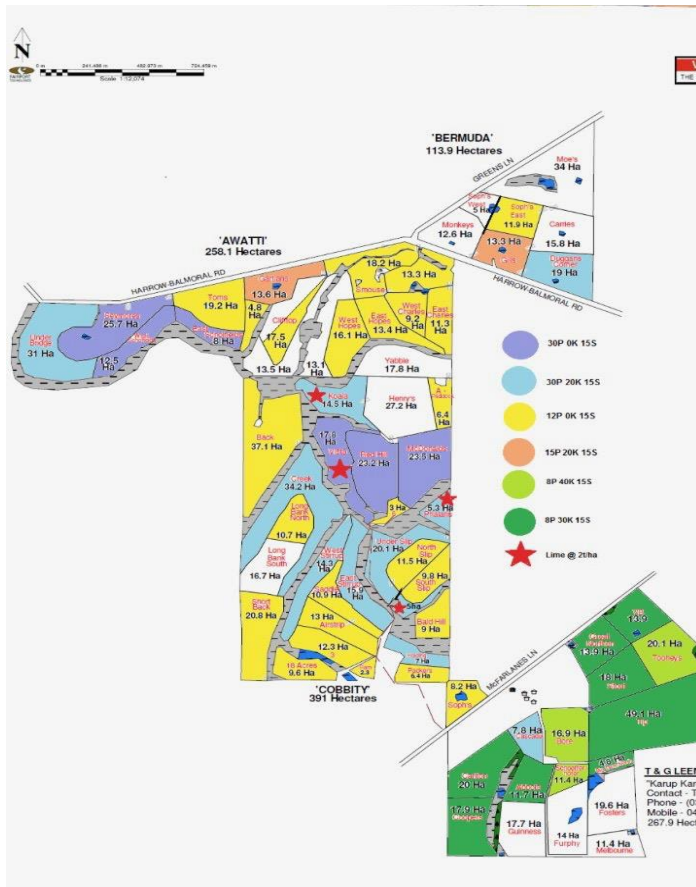




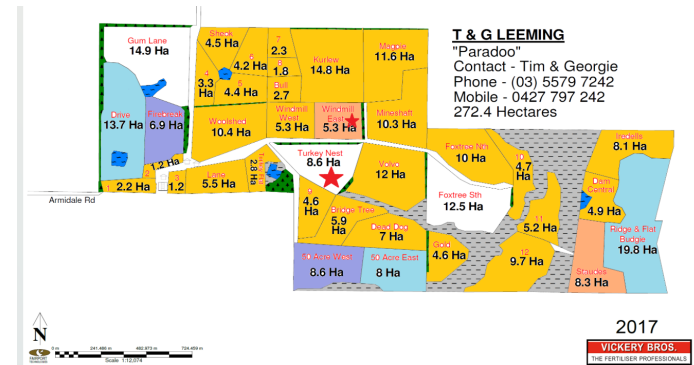
Paradoo

- Pigeon Ponds – south west VIC
- 600mm annual rainfall
- 1800ha (1620ha grazeable)
- 18-21 DSE/ha
- Self replacing prime lamb flock (9500 sheep)
- Background, trade, agist cattle 0-500hd
- Seedstock – Maternal genetics plus 500 rams





Property	Property size (ha)	Average paddock size (ha)
Paradoo	332	5.8
Cobbity	470	11.5
Awaiti	400	11.7
Karup	285	13.2
Delkara (leased 2022-2027)	265	16



Precision lambing

Productivity

Discipline

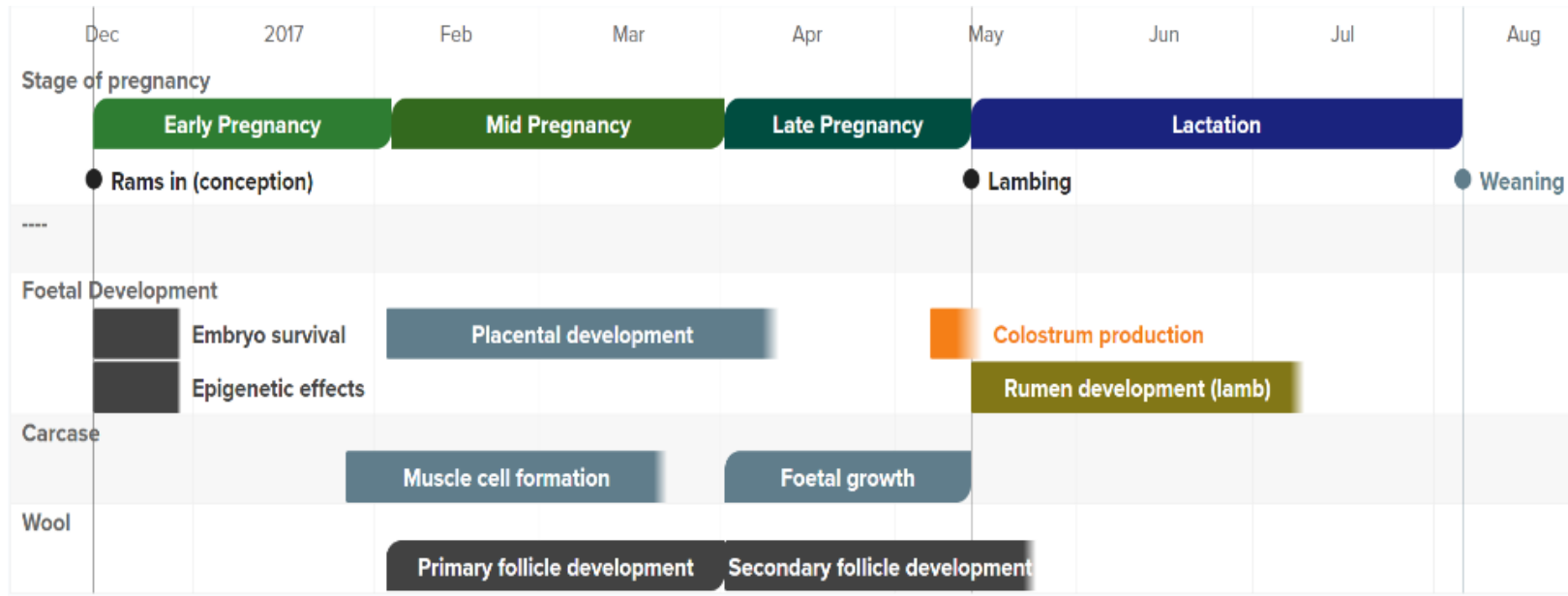
Efficiency

Use optimum inputs to generate
maximum profits

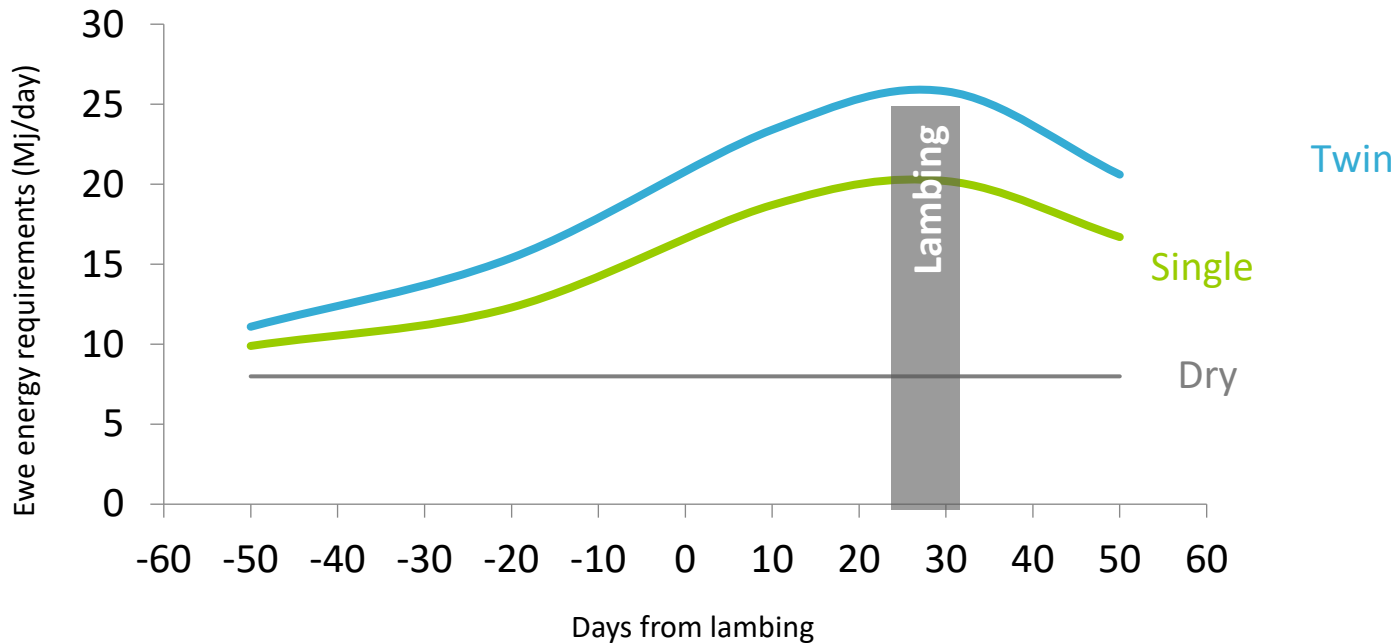
Ewe and lamb mortality

- 90-95% of ewe and lamb mortality occurs in late pregnancy and by day 2 of lactation

What happens when?



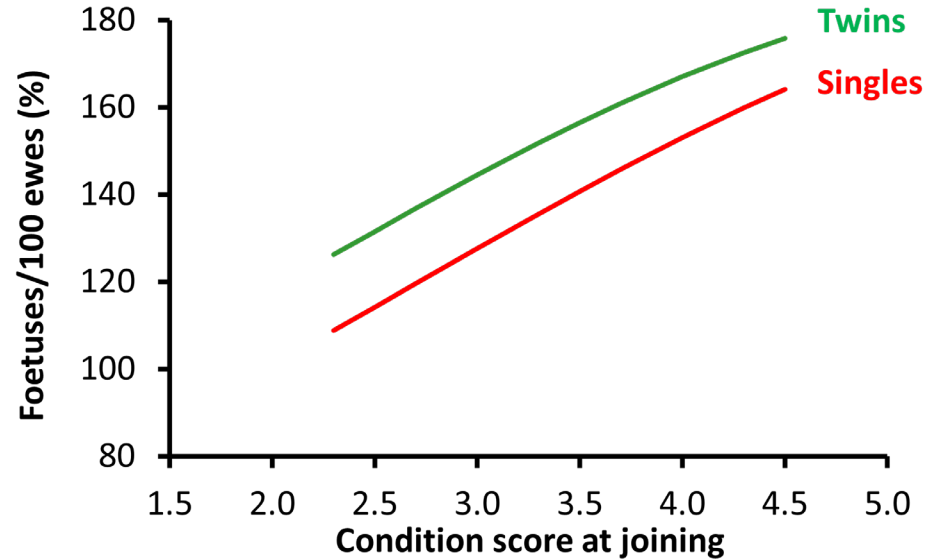
Why scan and differentially manage?



- Feeding for conception
- Weaning
- Condition score
- Feed test
- Feed budget



Condition score at joining



Carryover condition score

Carryover condition score

	Experiment 1		Experiment 2	
	CS 2.6	CS 3.7	CS 2.7	CS 3.4
Ewe CS at lambing	2.5	3.8	2.7	3.4
Ewe CS at joining	3.5	3.7	3.2	3.4
Reproductive rate (%)	133	147	140	151

Shelter improves lamb survival

Table 1 – Percent (%) lamb mortality for singles and multiples in unsheltered vs sheltered areas (adapted from Bird et al. 1984)

Reference	Shelter	Location	Duration (Years)	Single born	Multiple births
Egan et al. (1972)	Cypress	Hamilton	1	19 vs 6	27 vs. 13
Egan et al. (1976)	Phalaris	Hamilton	4	12 vs 9	33 vs 19
McLaughlin et al.(1970)	Cypress	Hamilton	2	13 vs 7	25 vs 12
Watson et al. (1968)	Shed	Caramut	1	21 vs 8	60 vs 24
Alexander et al. (1980)	Phalaris	Armidale	5	17 vs 9	51 vs 36
Lynch & Alexander (1977)	Sarlon mesh	Armidale	1	11 vs 5	68 vs 31
EverGraze (2009)#	Grass Hedge Rows	Hamilton	1	22 vs 18	24 vs 13*

Mean data for Merino and Coopworth Terminal cross lambs. *Figures for twin lambs only.

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Data

provided in the Table below.

Table: Lamb survival matrix

Ewe CS at lambling	FOO at lambling	Chill index					
		Single			Twin		
		900	1000	1100	900	1000	1100
2.0	500	94%	86%	71%	74%	54%	32%
	800	96%	90%	77%	80%	62%	39%
	1100	97%	92%	82%	84%	68%	46%
	1500	97%	94%	85%	87%	73%	52%
2.3	500	94%	87%	73%	78%	58%	36%
	800	96%	90%	79%	83%	66%	44%
	1100	97%	93%	83%	87%	72%	51%
	1500	98%	94%	86%	89%	77%	57%
2.5	500	95%	88%	74%	80%	61%	39%
	800	96%	91%	79%	85%	69%	47%
	1100	97%	93%	83%	88%	75%	54%
	1500	98%	94%	87%	90%	79%	60%
2.7	500	95%	88%	74%	82%	64%	42%
	800	96%	91%	80%	86%	71%	50%
	1100	97%	93%	84%	89%	77%	57%
	1500	98%	95%	87%	91%	81%	63%
3.0	500	95%	89%	75%	84%	68%	46%
	800	97%	92%	81%	88%	75%	54%
	1100	97%	94%	85%	91%	79%	60%
	1500	98%	95%	88%	93%	83%	66%
3.3	500	95%	89%	76%	86%	71%	49%
	800	97%	92%	82%	90%	77%	58%
	1100	97%	94%	85%	92%	82%	64%
	1500	98%	95%	88%	94%	85%	69%
3.5	500	96%	89%	76%	87%	73%	52%
	800	97%	92%	82%	90%	79%	60%
	1100	98%	94%	86%	93%	83%	66%
	1500	98%	95%	88%	94%	86%	71%

Single lamb mortality
varies little but still
requires shelter 10%

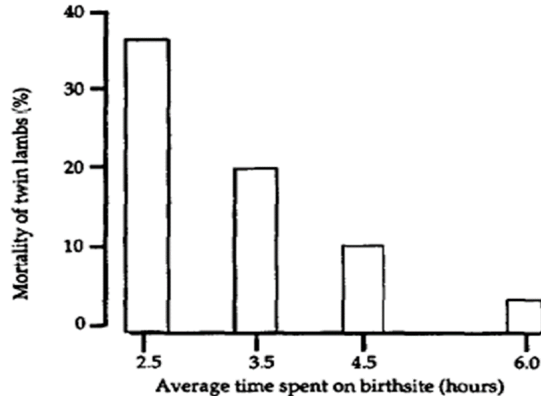
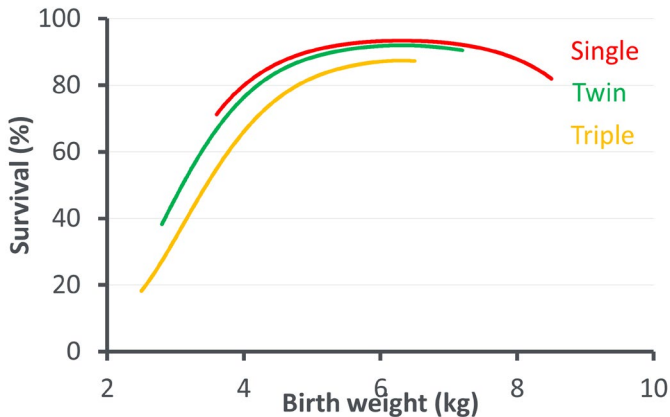
Death zone

35% more twin
lambs

Sweet spot

Starvation and mismothering

- Impacts of birth weight and ability of lamb to have energy reserves to stand, locate and feed from ewe
- Risk of exposure to poor condition increases mortality
- Impact of the ewes lambing environment and the need for the ewe to move away from the birth site to graze for food



What is precision lambing

- Joining of ewes for short intervals
- For discrete groups of ewes that have a similar physiological state
 - Similar stage of pregnancy
 - Similar lambing time
 - Similar weaning time

What is precision lambing?

- More than just joining for short periods and hoping for the best!
- Short joining periods enable a range of management interventions to be precisely executed
- A whole-farm systems approach
 - Best practice animal management (productivity gains)
 - Animal welfare
 - Landscape management and utilisation
 - Repeatable system year in, year out

Why precision lambing?

- Lambing an adult flock over 4-6 weeks creates problems:
 - Feed on offer (FOO) at start of lambing is not the same during or at the end of lambing
 - Ewe at start of lambing have optimal FOO, late lambers don't have the same feed quality
 - Ewe condition score decreases the longer ewes stay on sub-standard quality feed
 - Lamb mortality increases
 - Ewe mortality increases

Why precision lambing?

- Historically joining length has been anywhere between 34 days (5 weeks) and 70 days (10 weeks)
- Approximately 60-80% of ewes conceive generally over the first 17 day cycle
- Well managed composite flocks can achieve 85-90% conception on first cycle
- A few caveats:
 - Condition score at joining
 - Condition score during the previous pregnancy and lactation
 - Time of joining
 - Teasing ewes pre-joining

Why precision lambing?

- You can join at short interval...so what!
- Precision lambing is all about **lamb survival**
- The majority of lamb mortality happens in the first 24-48 hours
 - It is primarily attributable to starvation and mismothering
 - The largest risk from an animal welfare / social license to operate perspective – consumer is king and they want to know more

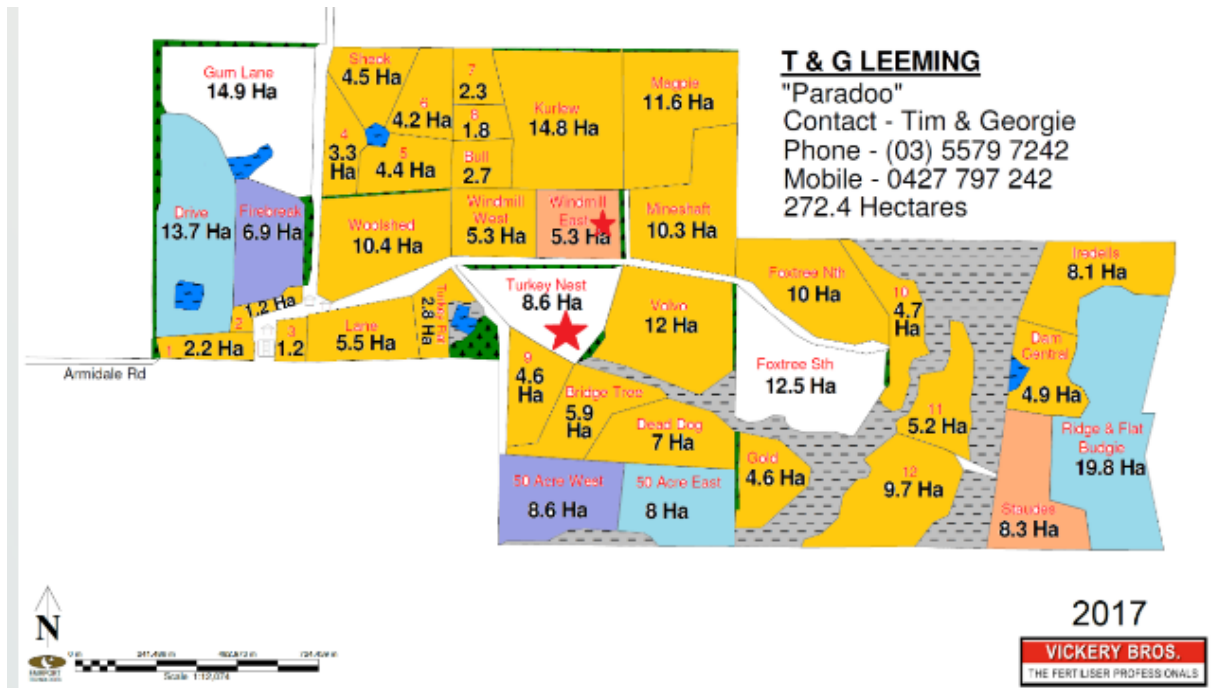
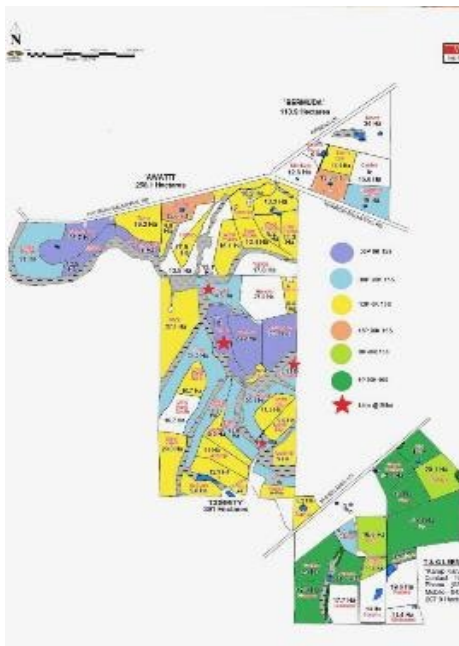
Why precision lambing?

- Manage ewes precisely during pregnancy (not overfeeding some and underfeeding others)
- Provide a lambing environment that is well protected to reduce the impacts of adverse weather conditions
- Allow the splitting of twin-bearing ewes into small groups to reduce lambing density and mismothering
- Provide a lambing environment that has enough feed available so that every ewe remains at the birth site
- Allows ewes to be moved onto other feed sources sooner after lambing, allowing the lambing environment to be conserved for the next lambing period

Precision lambing enables you to maximise your natural assets to assist in lamb survival



Looking at your farm from a lamb survival perspective



- Paddock size
- Mob size
- Feed on offer
- Condition score
- Privacy / past performance



Consider how you fence areas on farm



Collect paddock data

Calfity													
Paddock	Area (ha)	Days in Rotation	No. Head	FODS (ton)	Gr/ha	Future Growth (kg/ha/week)	Intake (kg/ha/week)	Total Future Growth	Total Consumption	FODS (ton)	Residual	Lamb Dots	One Dots
Strump East 1	5	20	34	1952	6.9	35	5	200	430	1942	58	1	100.0
Strump East 2	5	20	44	1952	8.5	35	5	200	525	1921	88	1	100.0
Strump East 3	5	20	45	1952	8.6	35	5	200	556	1911	86	1	100.0
Strump West 1	5	20	42	1952	8.4	35	5	200	530	1946	88	1	100.0
Strump West 2	5	20	34	1952	6.9	35	5	200	430	1918	26	2	100.0
Strump West 3	5	20	41	1952	6.9	35	5	200	491	1929	32	1	100.0
Problems	5.3	20	42	1952	7.9	35	5	200	475	1975	34	1	100.0
Under Strip	14.7	20	131	1952	6.8	35	5	200	434	1799	242	5	100.0
Opp 3rd Hill	5	20	39	1952	7.2	35	5	200	431	1889	72	1	100.0
Alma 1	6.6	20	42	1952	6.4	35	5	200	481	1916	88	1	100.0
Alma 2	6.6	20	36	1952	7.5	35	5	200	491	1929	141	2	100.0
Alma 3	6.6	20	38	1952	6.4	35	5	200	445	1945	26	2	100.0
Alma 4	7.1	20	33	1952	7.3	35	5	200	437	1915	33	1	100.0
Average	7.2		53.8	1915	7.3							0	6.92
Total	55.6		700	7000	1400							0	12
Bridge 1	7.5	20	55	1900	7.3	35	5	200	440	1889	110	2	100.0
Bridge 2	7.5	20	56	1900	7.3	35	5	200	440	1911	111	2	100.0
Bridge 3	7.5	20	52	1900	6.9	35	5	200	476	1786	93	1	100.0
Bridge 4	7.5	20	36	1900	6.4	35	5	200	386	1911	73	2	100.0
Scotfield West	0	20	75	1800	6.1	35	5	200	663	1930	190	5	100.0
Schofield East	12.9	20	67	1900	4.9	35	5	200	230	1927	123	1	100.0
Triangle	4.9	20	31	1900	6.9	35	5	200	413	1887	82	2	100.0
Crossing	13.3	20	43	1900	3.0	35	5	200	189	1809	85	2	100.0
Cowardin	5	20	44	1900	6.5	35	5	200	505	1872	88	1	100.0
Average	8.1		50	1817	6.6							0	6.44
Total	163.1	Total Dots	650	7000	800							0	16
Total Ticks (dot)	1150				1158								
Total Area	150.1												
Stocking Rate	7.34	10											
Paddock	Area (ha)	No. Paddock	No. Paddock	Lamb (kg/ha)	Stocking Rate	Stocking Rate	Stocking Rate	Stocking Rate	Stocking Rate	Stocking Rate	Stocking Rate	Stocking Rate	Stocking Rate
East Strump 1	5	48	48	84	92.7	2.6							
East Strump 2	5	48	48	84	92.7	2.6							
East Strump 3	5	48	48	84	92.7	2.6							
West Strump 1	5	48	48	84	92.7	2.6							
West Strump 2	5	48	48	84	92.7	2.6							
West Strump 3	5	48	48	84	92.7	2.6							
Problems	5.3	48	48	84	92.7	2.6							
Under Strip	14.7	131	131	217	92.7	16.3							
Alma 1	6.6	42	42	84	92.7	16.3							
Alma 2	6.6	36	36	84	92.7	16.3							
Alma 3	6.6	38	38	84	92.7	16.3							
Alma 4	7.1	33	33	84	92.7	16.3							
Opp 3rd Hill	5	39	39	84	92.7	16.3							
Bridge 1	7.5	55	55	84	92.7	16.3							
Bridge 2	7.5	56	56	84	92.7	16.3							
Bridge 3	7.5	52	52	84	92.7	16.3							
Bridge 4	7.5	36	36	84	92.7	16.3							
Schofield East	12.9	67	67	84	92.7	16.3							
Schofield West	0	75	75	84	92.7	16.3							
Triangle	4.9	31	31	84	92.7	16.3							
Crossing	13.3	43	43	84	92.7	16.3							
Cowardin	5	44	44	84	92.7	16.3							
Total	163.1	1152	1152	2108	2108	41.2							

Summarise results & make changes

Ewe Lmb Twin	484	968	0	0.0%	1.13	
Ewe Lmb Single	288	288	0	0.0%	0.69	
Late Twins	173	346	0	0.0%	2.34	
Triplets	83	249	102	41.0%	0	
Total	1028	1851	102	5.5%	5.64	

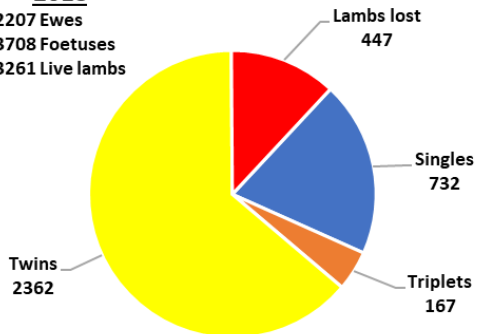
Ewe Mortality: Data taken during lambing. Pre and post lambing can incur an extra .3% mortality in ewes and up to 2% in lamb mortality to weaning.

Twin Bearing Ewe's					
Paddock Valuation	#1	#2	#3	Average	Rank (All)
East Stirrup 1	92.65	0.88	0.00		
East Stirrup 2	97.73	0.91	0.00		
East Stirrup 3	90.70	0.89	0.00		
East Stirrup 4			0.00		
West Stirrup 1	94.05	0.89	0.00		
West Stirrup 2	93.59	0.91	0.00		
West Stirrup 3	95.12	0.79	0.00		
Phalaris	82.14	0.81			
Under Slip	87.19	0.86			
Vista 1	90.48	0.92	0.00		
Vista 2	92.11	1.02	0.00		
Vista 3	92.11	0.53	0.00		
Koala	91.18	0.87			
Opp Bald Hill	91.67	0.83	0.00		
Holding					
Bridge 1	95.45	0.94			
Bridge 2	99.11	1.10			
Bridge 3	97.12	0.91			
Bridge 4	95.83	0.83			
Scholfields East	86.07				
Scholfeld West	86.67	0.89			
Triangle	88.71				
Crossing	90.00				
Cascade	97.73		0.00		

Cobbitty 2017 Lamb Survival Summary					
	No. Ewes	Foetus	Lms Mked	Survival	Ewe Mort.
June Tw	1150	2300	2109	91.7%	1.59
June S	1112	1112	1061	95.4%	0.45
Aug Tw	944	1888	1647	87.2%	2.05
Aug S	640	640	599	93.6%	0.94
Totals	3846	5940	5416	91.2%	46
			1,4082163		1,1960478

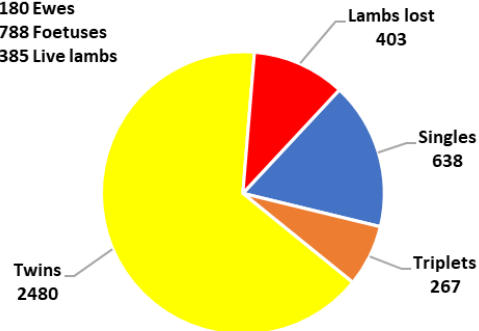
148%

2018
2207 Ewes
3708 Foetuses
3261 Live lambs



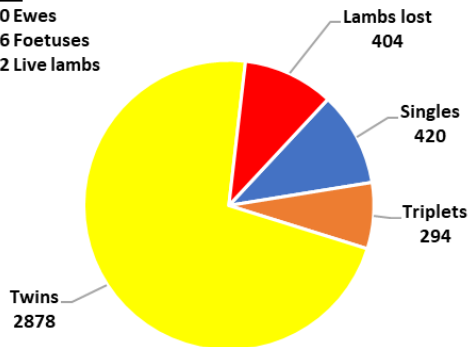
155%

2019
2180 Ewes
3788 Foetuses
3385 Live lambs



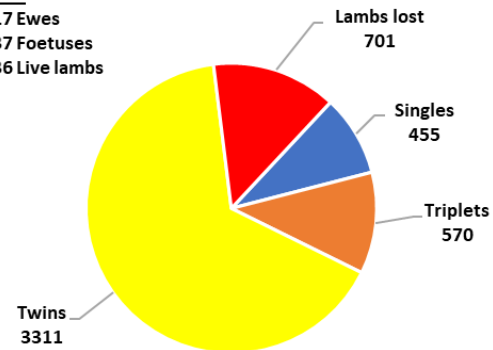
166%

2020
2160 Ewes
3996 Foetuses
3592 Live lambs



166%

2021
2617 Ewes
5037 Foetuses
4336 Live lambs



Understand what drives your system?

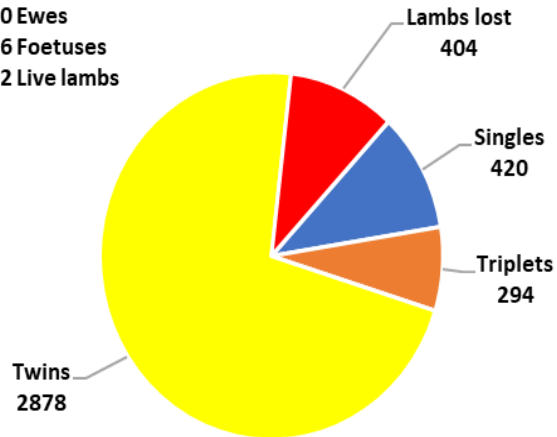
- Set targets – hit them consistently and then reset the bar

2020

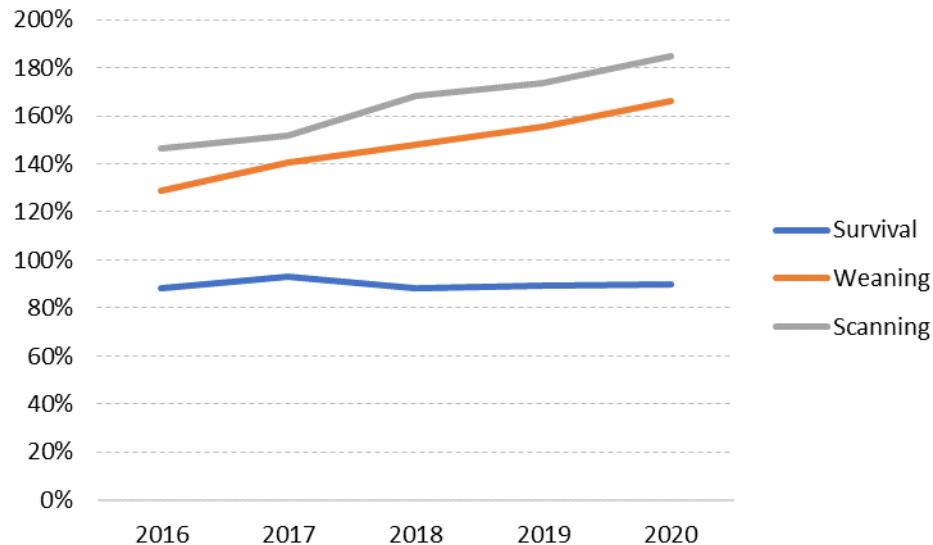
- 185% Scan
- 1.10% Dry
- 0.9% ewe Mortality
- 89.8% lamb survival

2020

2160 Ewes
3996 Foetuses
3592 Live lambs



2018 Paradoo Prime scanning



Triplet bearing ewes – manage intake in late pregnancy



Why do we think precision lambing is the next step in lamb survival?

The benefits of the precision lambing system

- Multiple use of best paddocks/shelter
- Efficacy of animal health (e.g., vaccination, worm control)
- Labour saving – condensing management/surveillance
- Ability to control subsequent grazing & feed allocation
- Marking date/age
- Weaning date
- Marketing lambs
- Ewe recovery
- Puberty date for ewe lamb joining
- Full utilisation of known technology

Take home messages

1. Understand the key targets to maximise sheep reproduction within your flock and the key focus areas in order to achieve this
2. Collect useful data over the joining/lambing period and use it to refine your management
3. Consistency is key – score and scan – and use these numbers to assist managing your ewes appropriately over the lambing period

Tools and resources

- Paradoo Precision Lambing
 - www.precisionlambing.com
 - www.paradooprime.com
- Lifetime Ewe Management
- Lifting Lamb Survival
- Lifetime Maternals – improved guidelines for managing non-merino ewes

Links to all tools and resources listed above are included in your forum proceedings

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Tim Leeming
Paradoo Prime

