

Flexibility in sheep systems– lessons learnt from EverGraze research at Wagga/Tarcutta

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EverGraze is a Future Farm Industries CRC, MLA and AWI research and delivery partnership



EverGraze

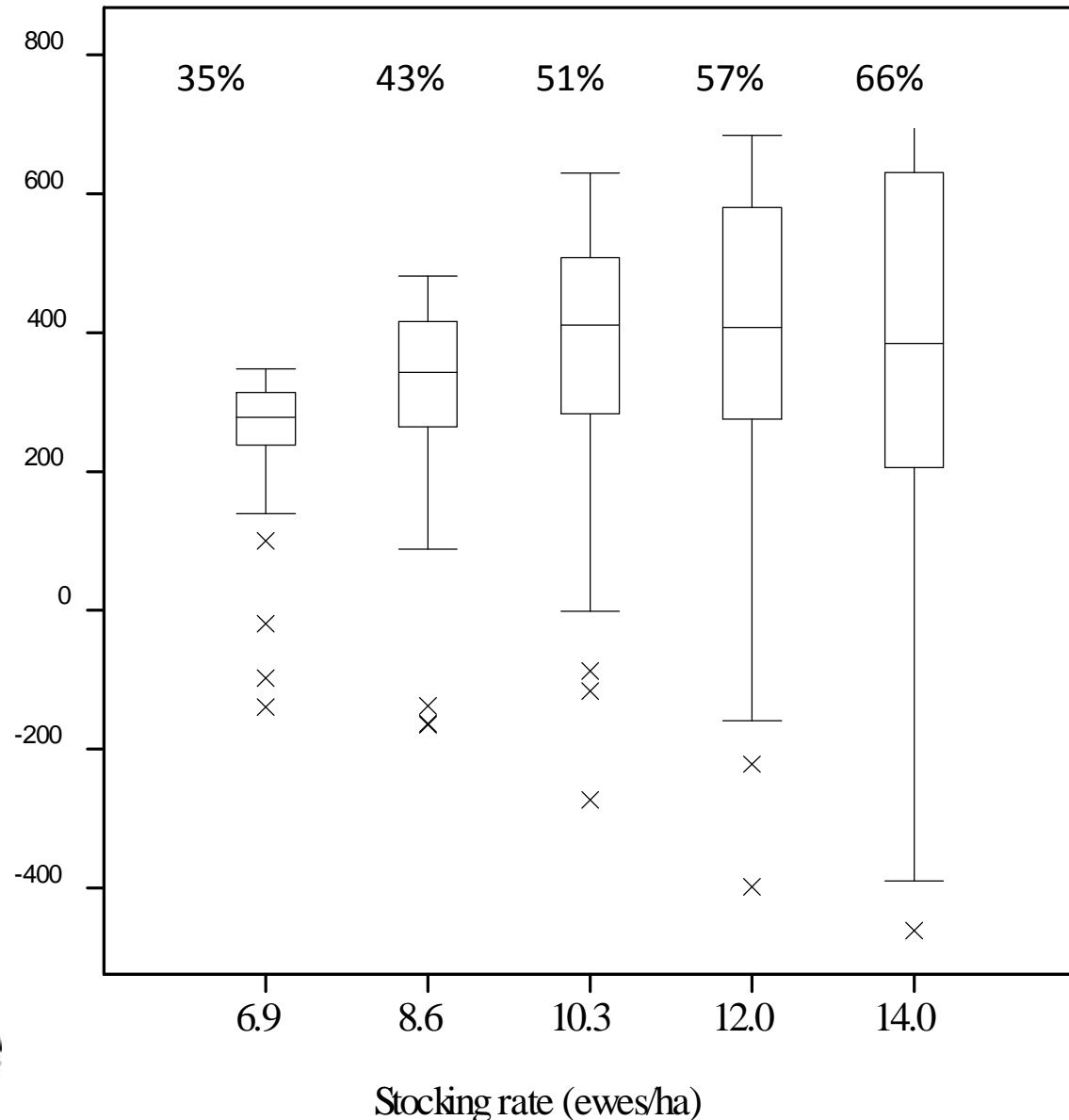
- Perennial pastures are good for maintaining groundcover and reducing dryland salinity
- But how do we get the best returns from them to justify the investment?
- Questions:
 - How much lucerne on the farm?
 - Green feed at joining and lambing %
 - Can perennials improve lamb survival?
 - What sheep system gives the best return from perennials?
- Addressed through grazing trials and computer modelling

Stocking rate and lambing time

- Production/ha driven by stocking rate
- Choice of lambing time affects optimal ewe stocking rate
- The trick is to match feed demand with feed supply to maximise production and control costs
 - Different lambing times will lend themselves to selling stores rather than finished lambs

Stocking rate and GM –September lambing merino x terminal at Tarcutta

20% of farm as lucerne
80% phalaris
40 years weather data

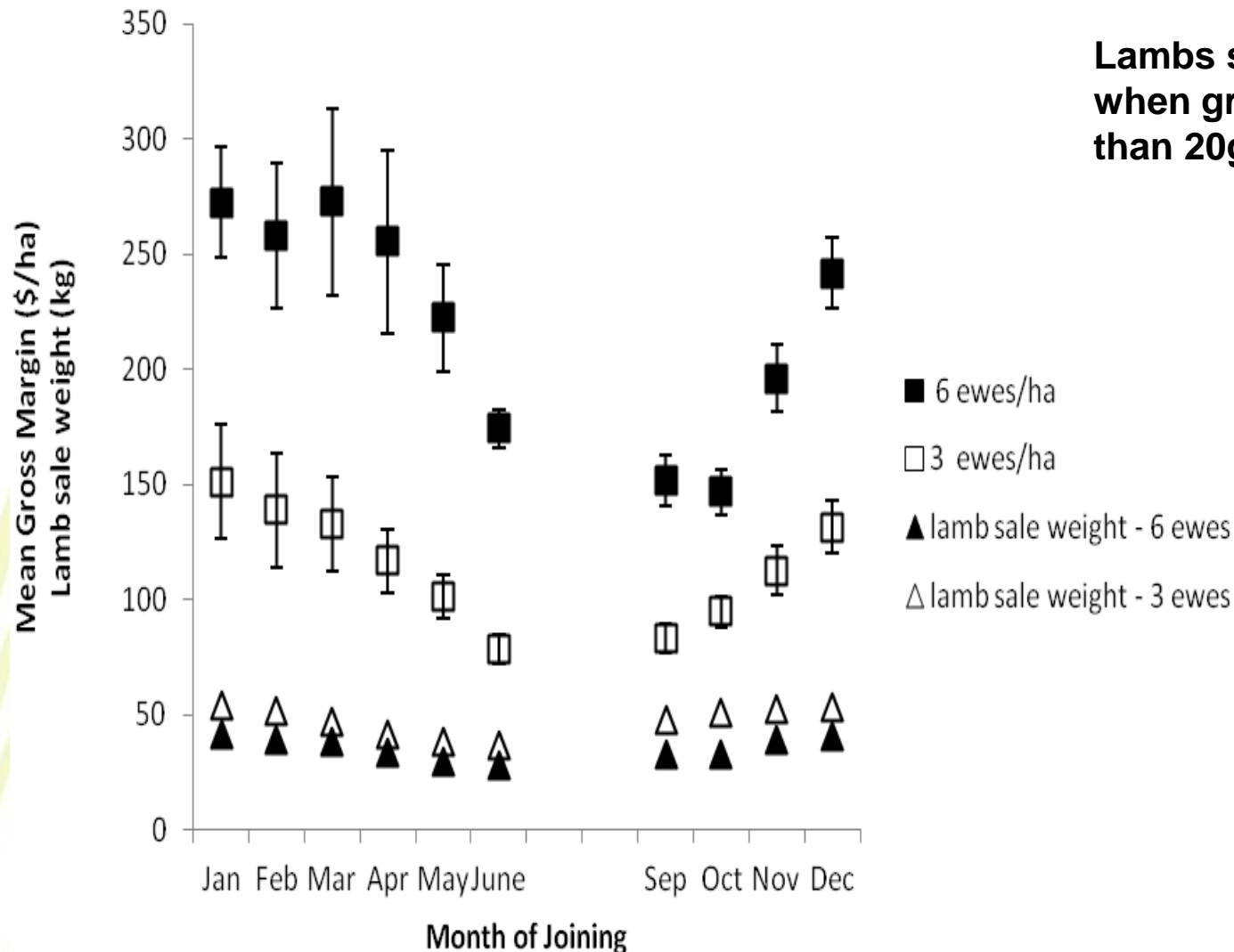


Modelling a Merino terminal system

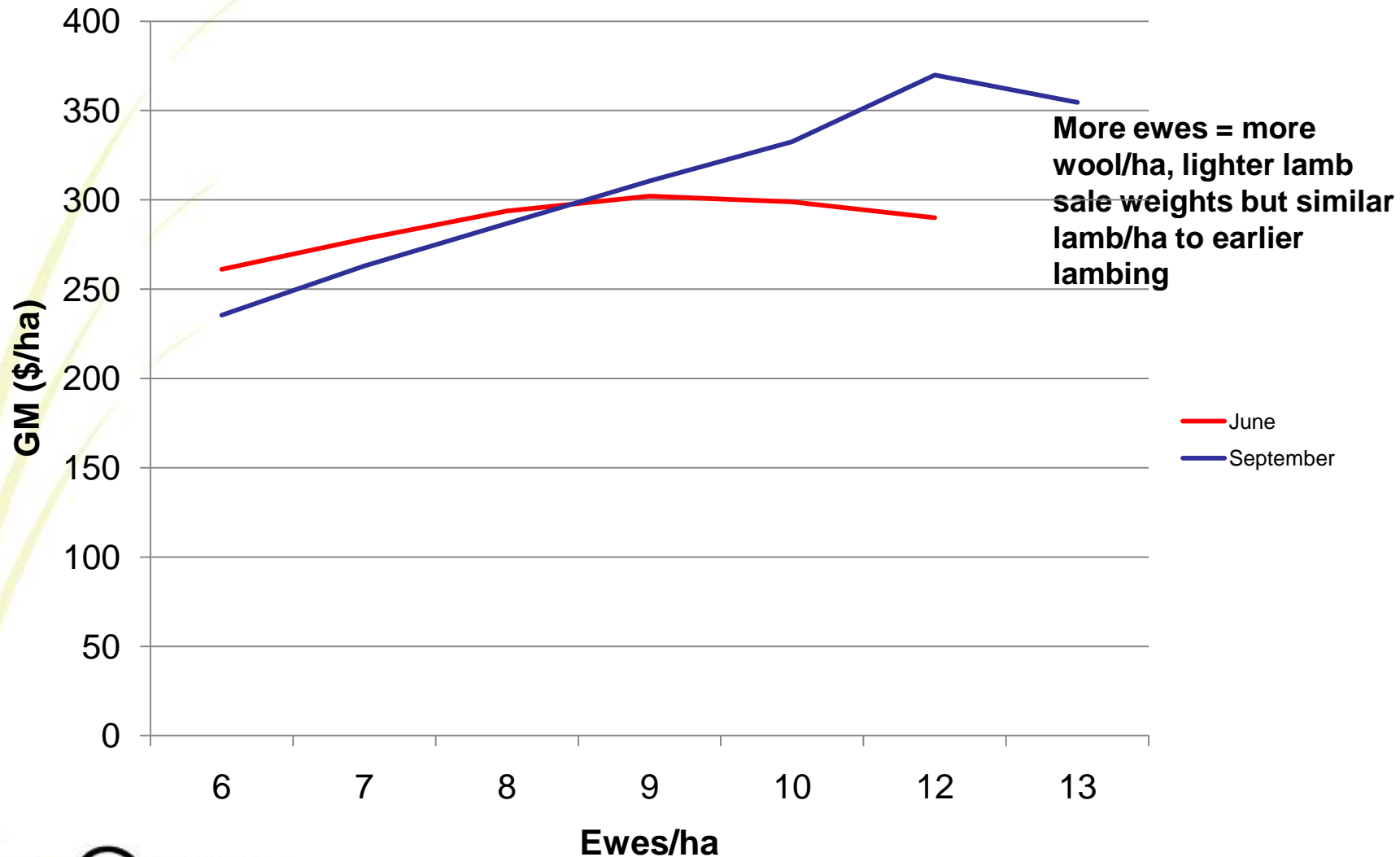
- 55 kg merino ewes joined to terminals, replacements bought
- 1971-2011 Tarcutta weather data
- Farm of 80% phalaris/sub and 20% lucerne/sub between Wagga and Tarcutta
- Sell lambs – flexible policy
 - by 12 months of age or when the heaviest group weighed 60 kg
 - or if no live lucerne was available
 - or if lamb growth rates fell below 20 g per day
 - no production feeding

Lambing time at low stocking rates

Lambs sold at 60kg or when growth rate less than 20g/d



Stocking rate, lambing time and Gross Margin



Conclusions from modelling

- Based on the last 40 years of weather data, a grazing property with 20% lucerne between Wagga and Tarcutta running a merino system joined to terminals:
 - Would have been better off lambing in September and running more ewes/ha to produce mainly store lambs than lambing in July (less ewes/ha) and producing mainly finished lambs
 - Trying to run more ewes/ha for July lambing reduces margins because feed costs increase (as winter is normally the time of greatest feed shortage)

Grazing experiment

- 2006-2010 at Coreinbob
- CentrePlus Merino ewes
- Grazed a perennial pasture base (20% of farm as lucerne, remainder phalaris and tall fescue) and fed off plots when required to maintain groundcover

Wagga EverGraze site (12 x 5ha farmlets)

Phalaris (clay loam, pH
6.5, red-brown)

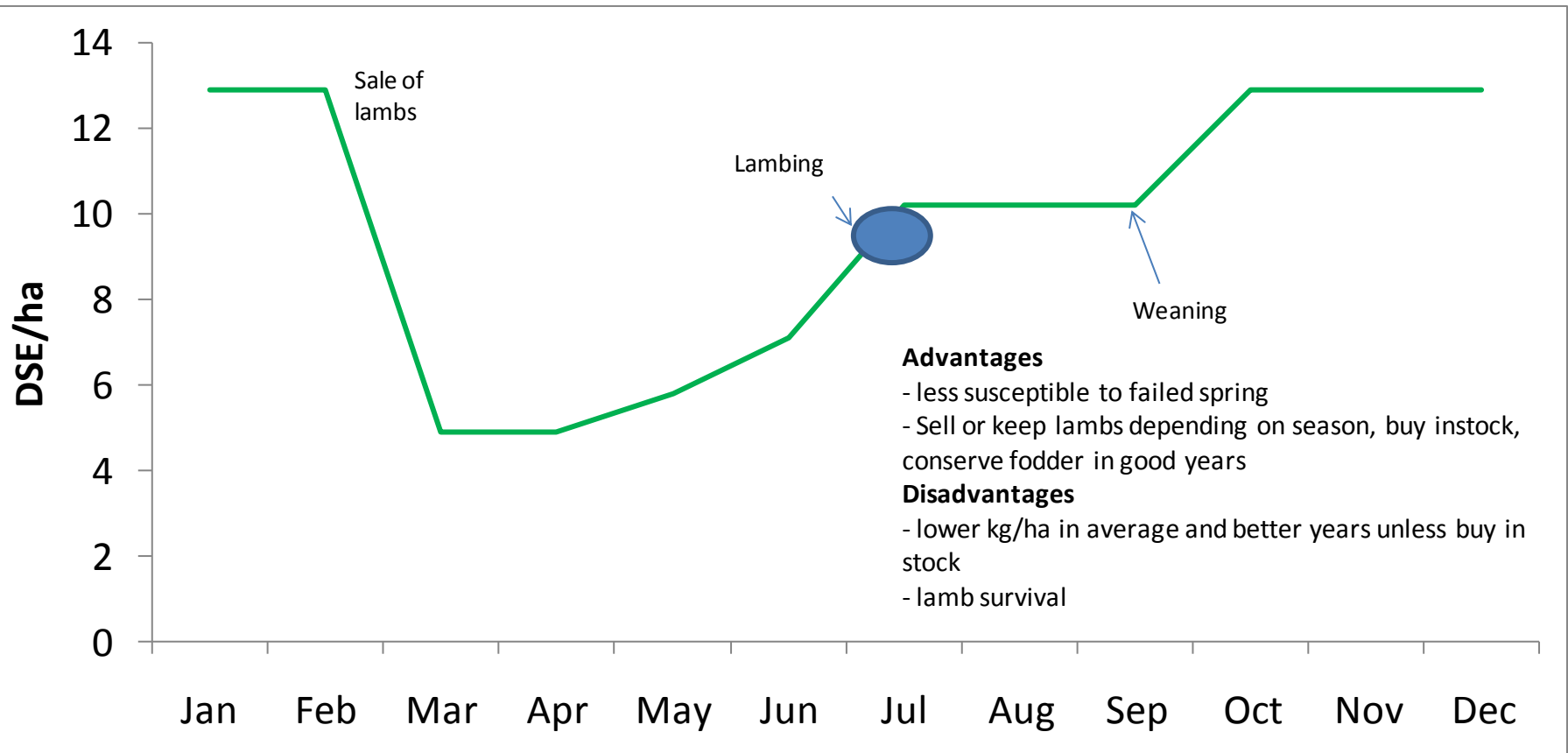
Tall Fescue (Clay
loam, pH 6.5, brown-
grey)

Lucerne (clay loam,
pH 6.5, red-brown)

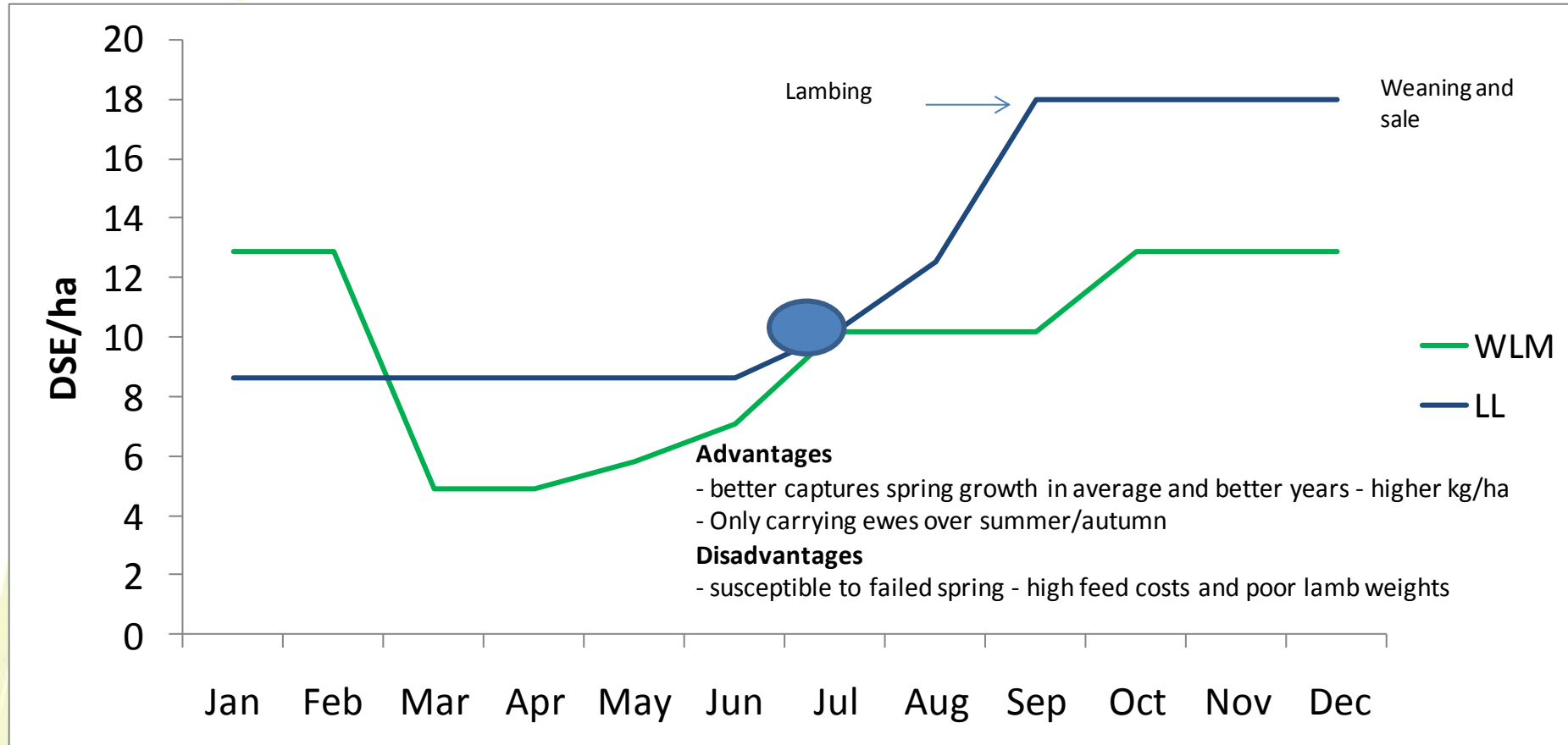
What lambing time best uses the perennial pasture base?

- Three different sheep systems compared
 - Winter (July) lambing (Merino only)
 - Spring (September) lambing (Merino and terminal)
 - Split lambing (July and September lambing) (Merino and terminal)
- All lambs 'sold' and replacements bought in
- Ewes managed to achieve CS 3 at joining and lambing
- The systems had different ewe numbers but a similar mid winter stocking rate to maximise potential returns for that lambing time

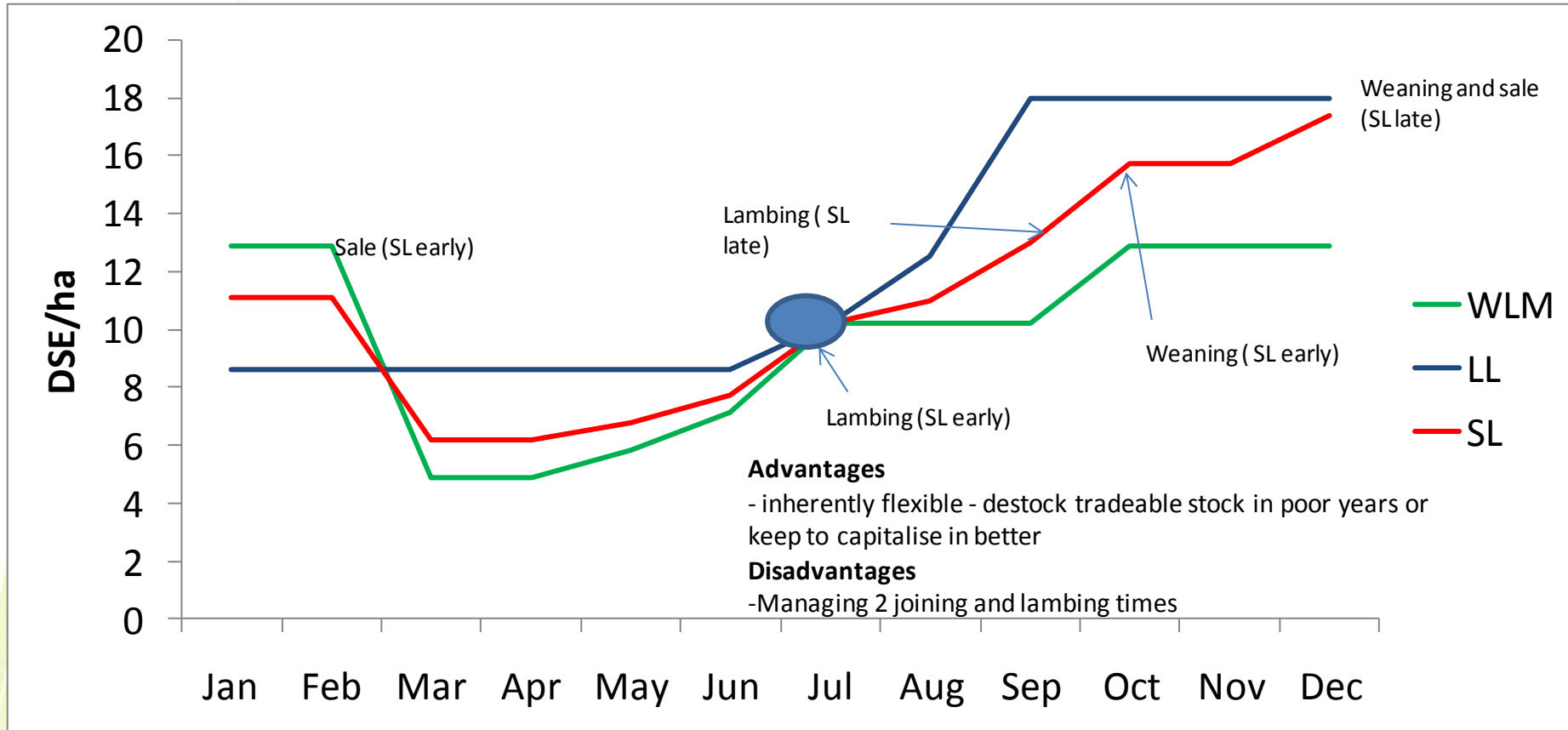
Winter (July) lambing system approx. stocking rate



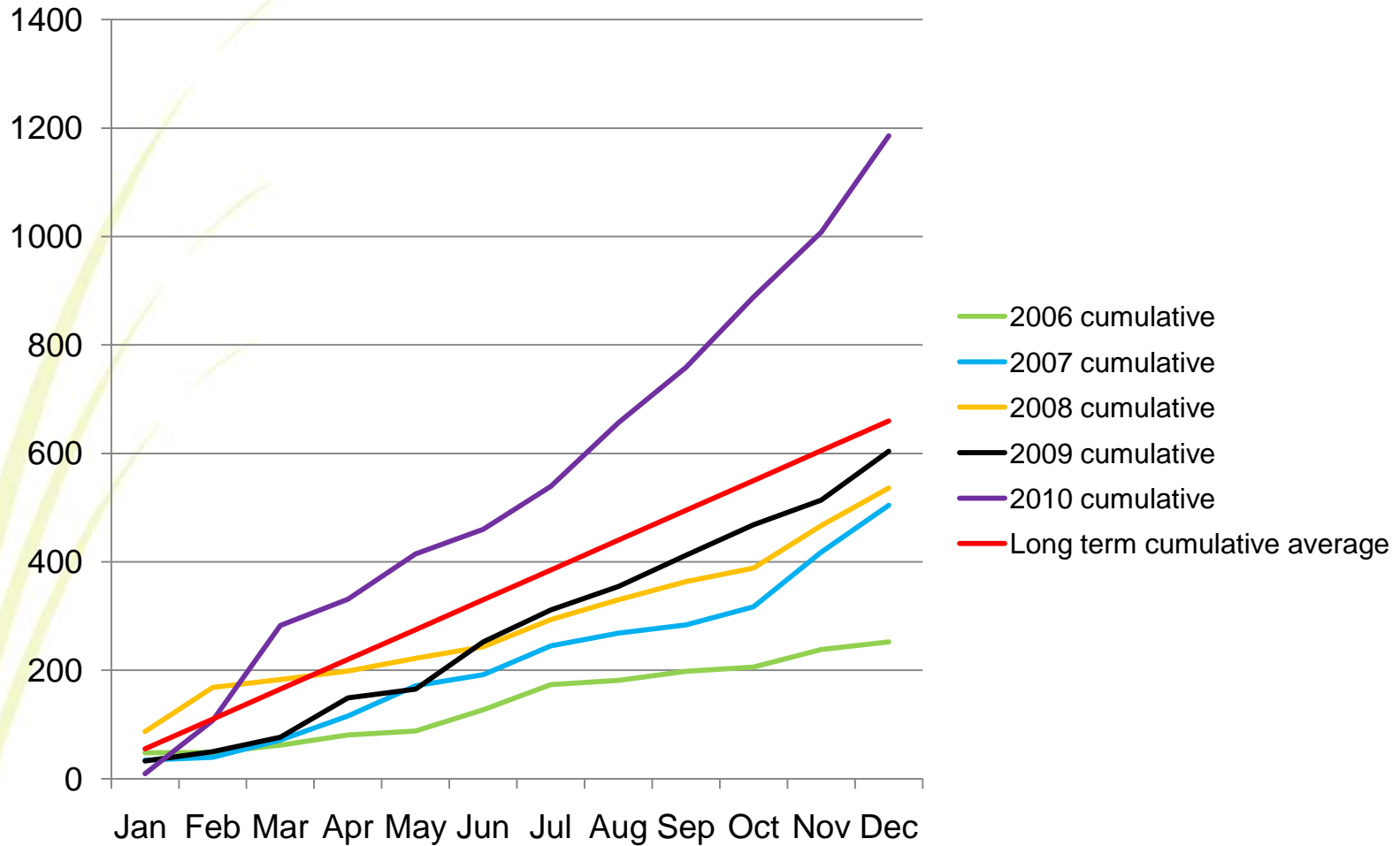
September Lambing approx. stocking rates



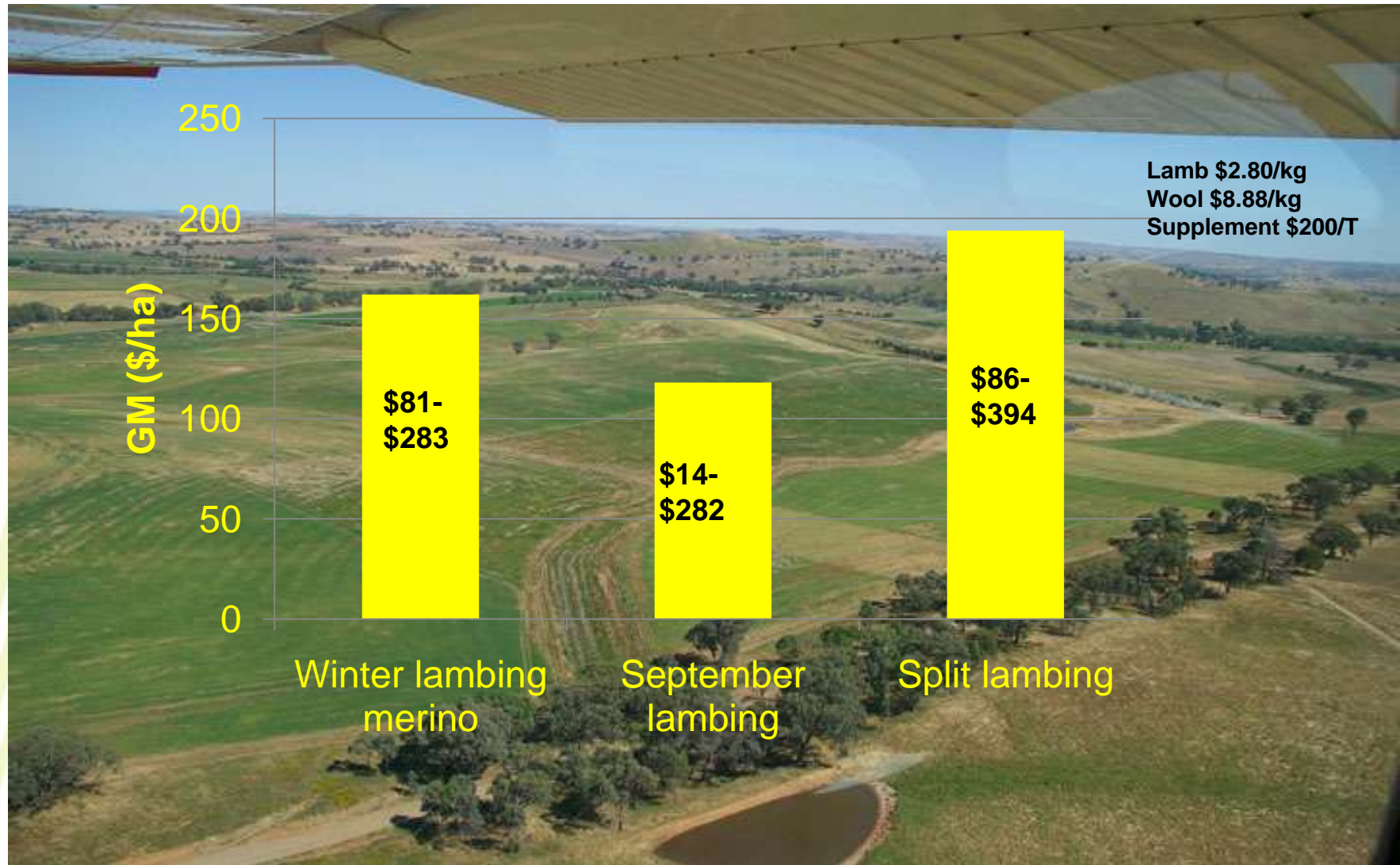
Split joining/lambing approx. stocking rate



Cumulative rainfall (mm) at the site



5 year average GM



Production differences

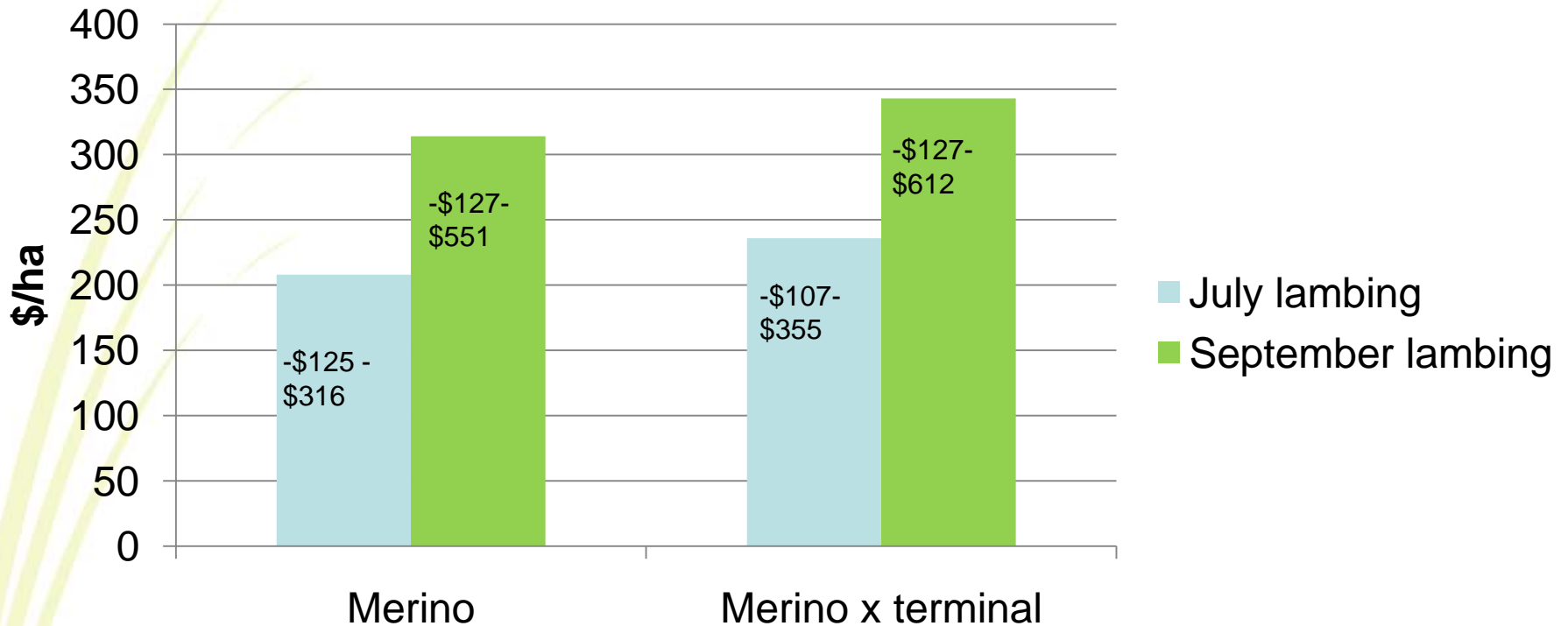
06-10 average	July Lambing	Split Joining	Sept lambing
Lamb kg/ha	172 ^a	196 ^b	175 ^a
Clean wool kg/ha	15.5 ^a	18.9 ^b	27.4 ^c
Supp kg/ha	355 ^a	585 ^b	995 ^c

Conclusions from the experiment

- Spring lambing struggled in this experiment due to 4 poor springs.
- Split Lambing was more flexible due to
 - lower stocking rates (reducing feed costs)
 - lambing at different times enabling one drop of lambs (July) to be sold at good weights regardless of season
 - the ability to react quickly (by selling lambs) to deteriorating seasonal conditions.
 - Keeping lambs
- If a proportion of the flock were tradeable stock (eg wethers), a spring lambing flock could also adjust to seasonal conditions more readily than a ewe-only flock
- Winter Lambing had the lowest production risk, but low stocking rates meant it had limited ability to increase production in favourable seasons.

BUT...these were 'abnormal' years

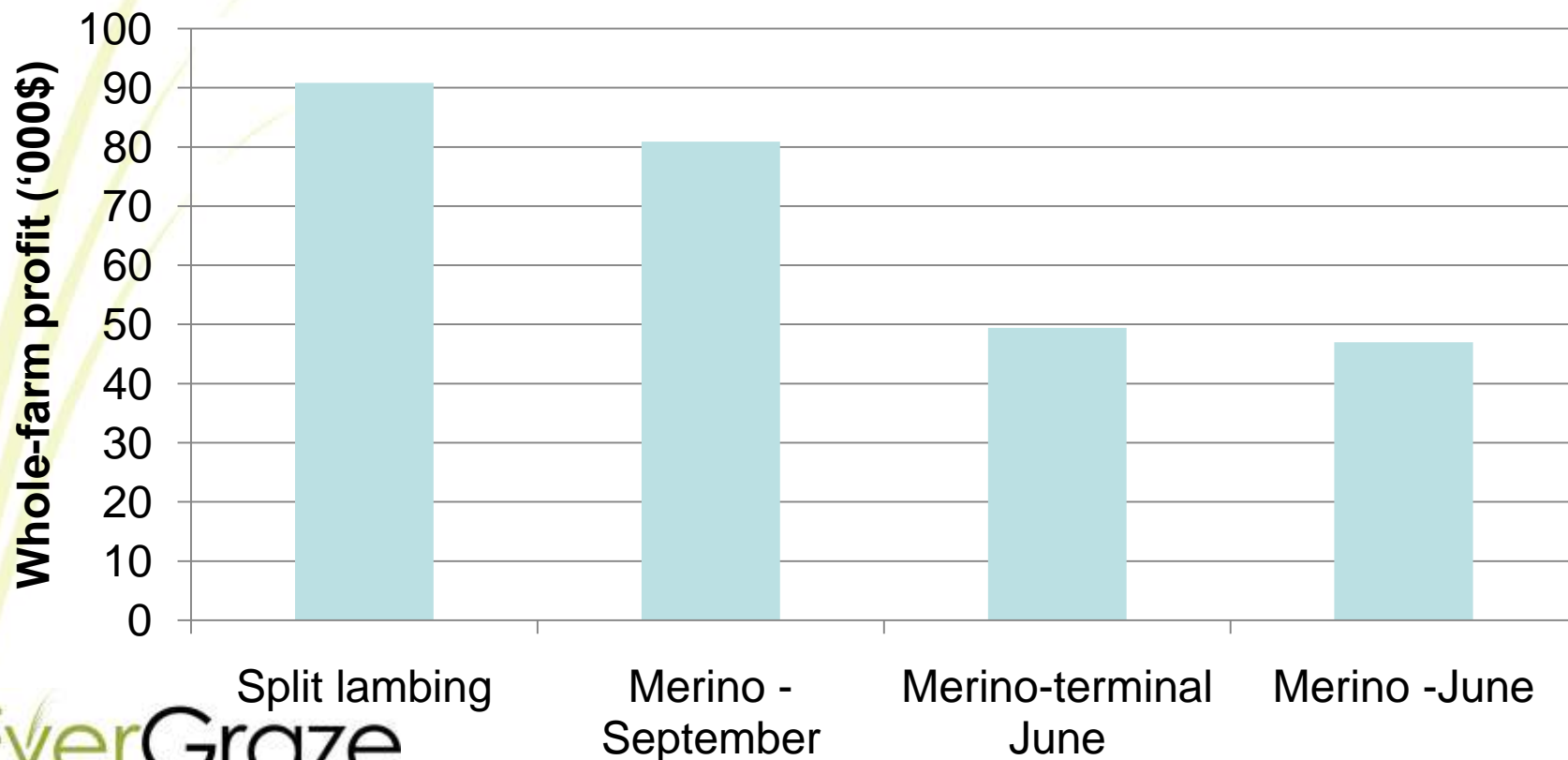
1971-2010 GrassGro simulated GM



Lambs sold at 23 weeks in all simulations
14 DSE/ha mid-winter stocking rate

How would split lambing perform over the long-term?

- GrassGro model can't run 2 lambing times for same flock
- Have modelled using MIDAS for an 'average year'



What does it all mean?

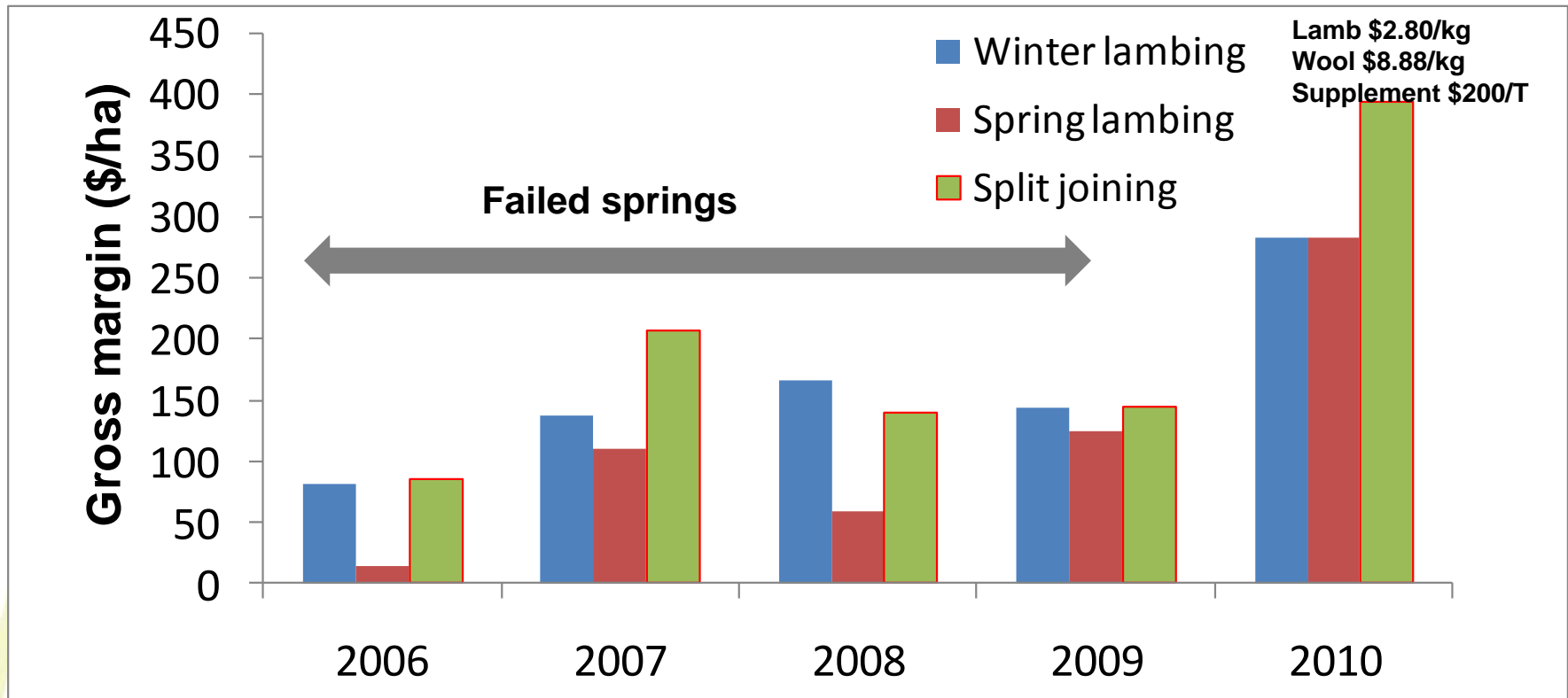
- Split lambing worked in the experiment because it was more flexible
 - But 2 lambing times won't suit everyone, and more modelling is underway to look at long term performance
- September lambing produced poorer results in the experiment as it was less flexible in the poor years
 - Modelling shows it can produce greater gross margins over the long term than winter lambing
 - But having all DSE's associated with a September lambing breeding flock is riskier, and requires good tactical management to cope
- Potential stocking rates will be determined by understanding your annual feed supply and demand
 - Soils, climate and pasture species on the farm all affect supply
 - Stocking rate, lambing and sale dates all affect demand
 - www.evergraze.com.au has tools to help you

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Industries CRC, MLA and
AWI research and delivery
partnership



Production differences and yearly GM



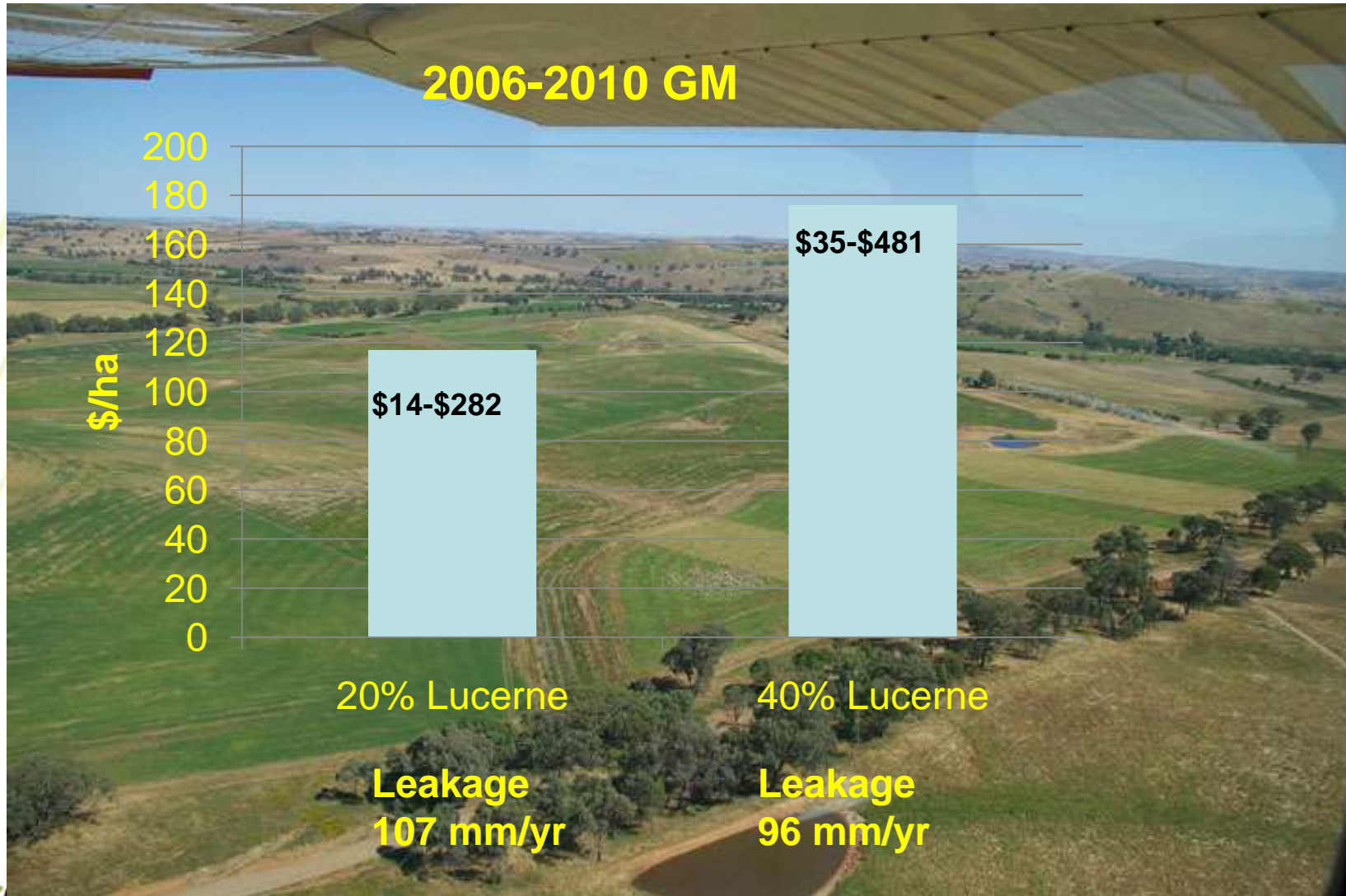
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How much of the grazing system should be lucerne?

- Spring Lambing Merino flock joined 50/50 to merino/terminal sires
- Ewes fed to achieve CS3 for joining and lambing
- Lambs weaned at 12 weeks from the start of lambing (average of 10 weeks)
- Lambs sold at weaning unless green feed (lucerne) available
- Compared 20 % vs 40% of the farm to lucerne

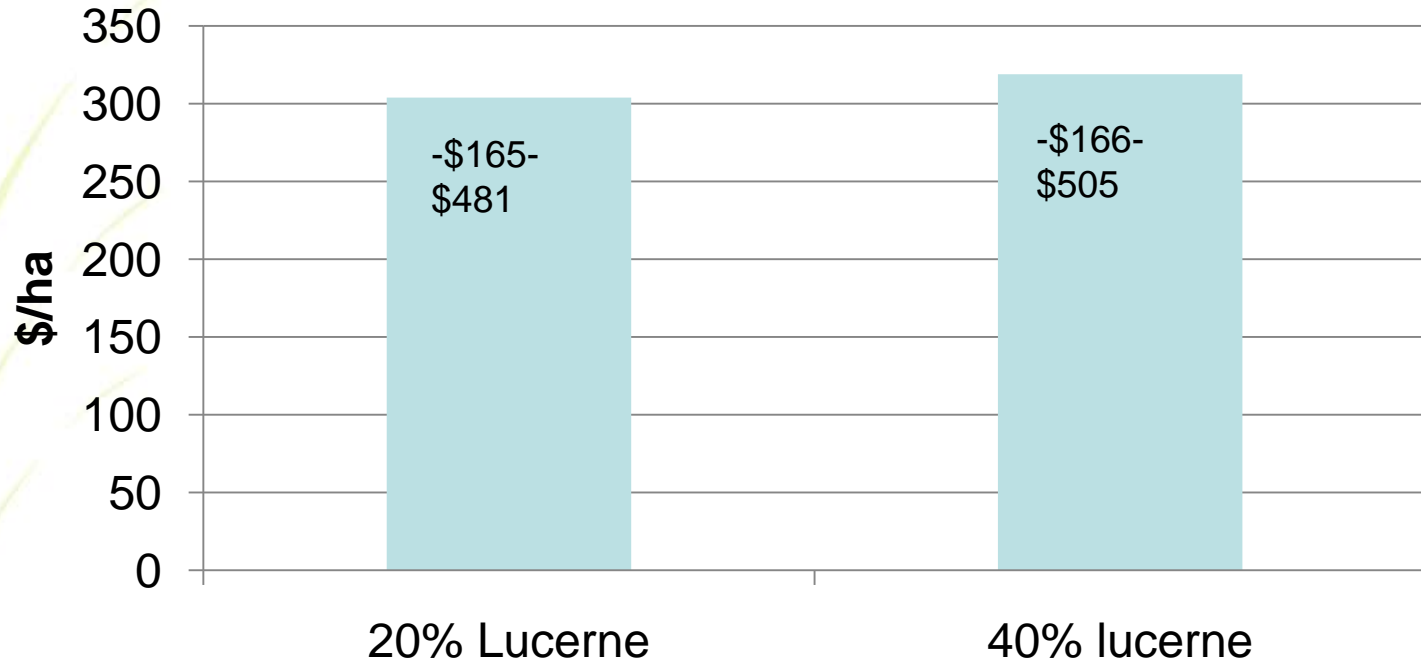
Wagga EverGraze site

More summer actives provides options



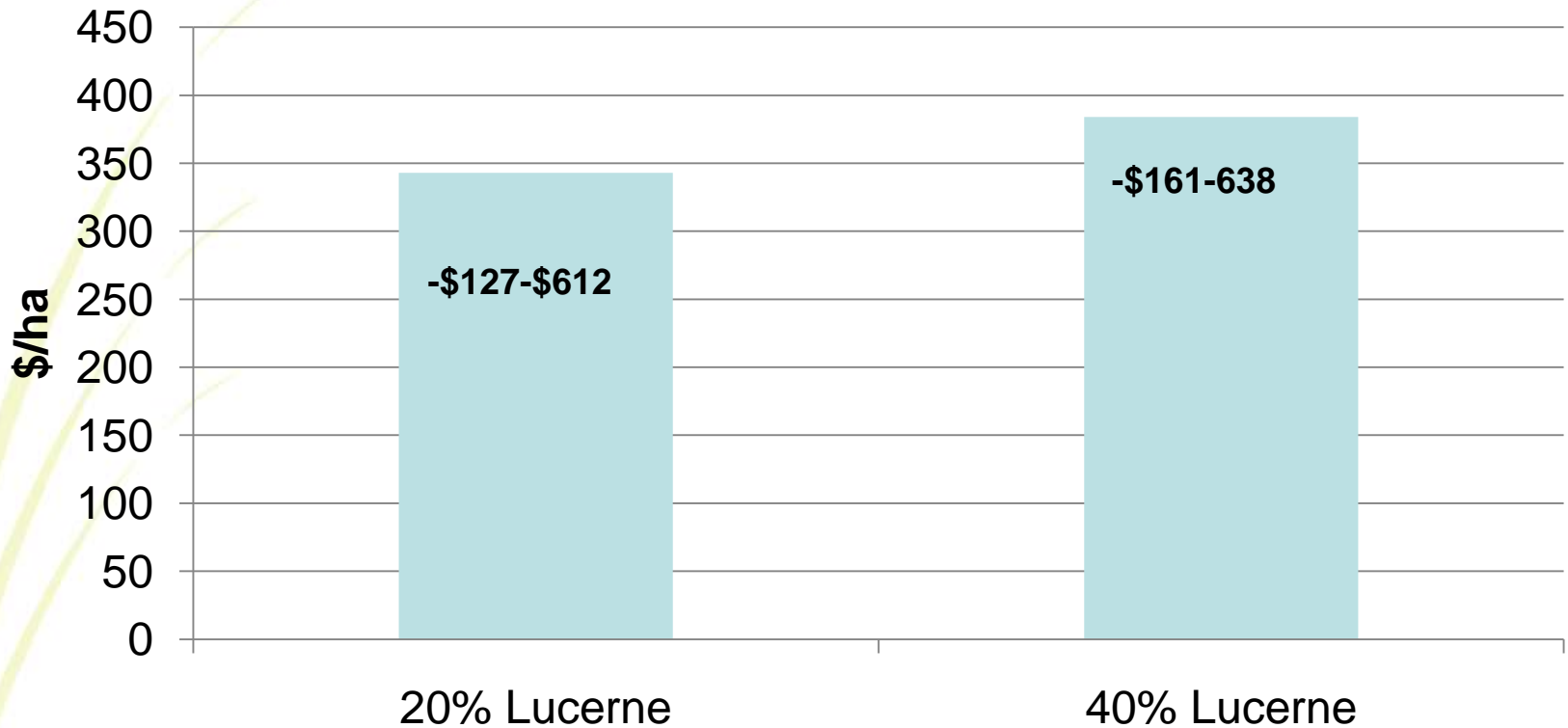
But these were 'abnormal years'

1971-2010 GrassGro simulated GM



**Merino x terminal, 30% twins
Joined in April
ALL lambs sold at weaning**

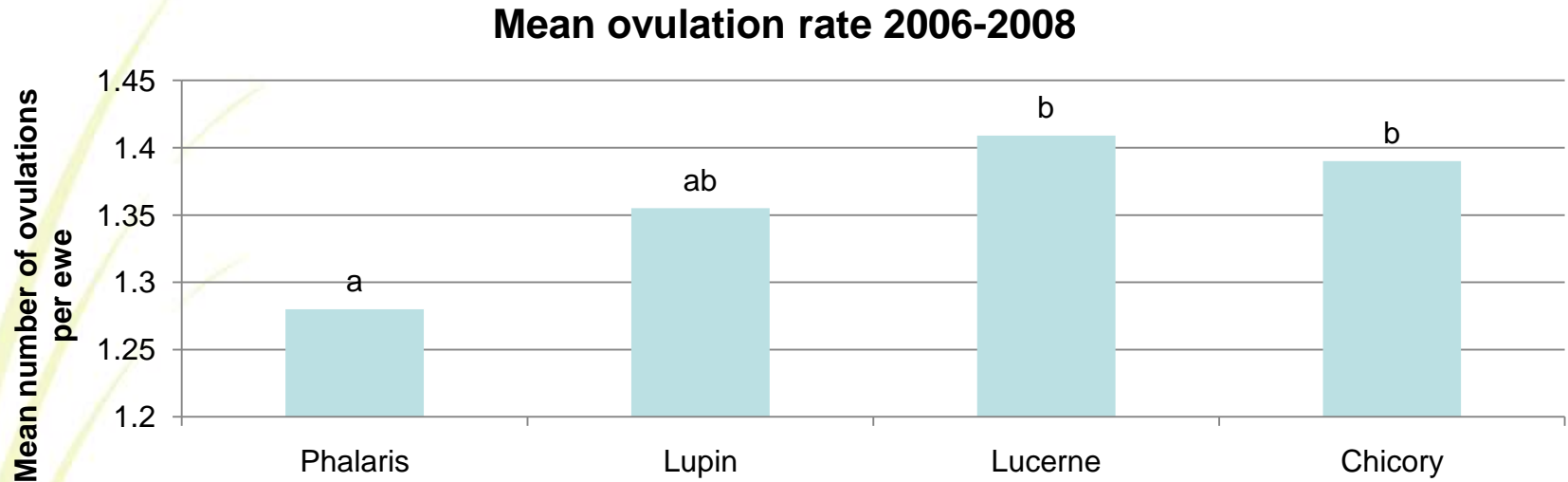
Same simulation with lambs retained until 23 weeks of age



Tactical management is important to capture the benefits!

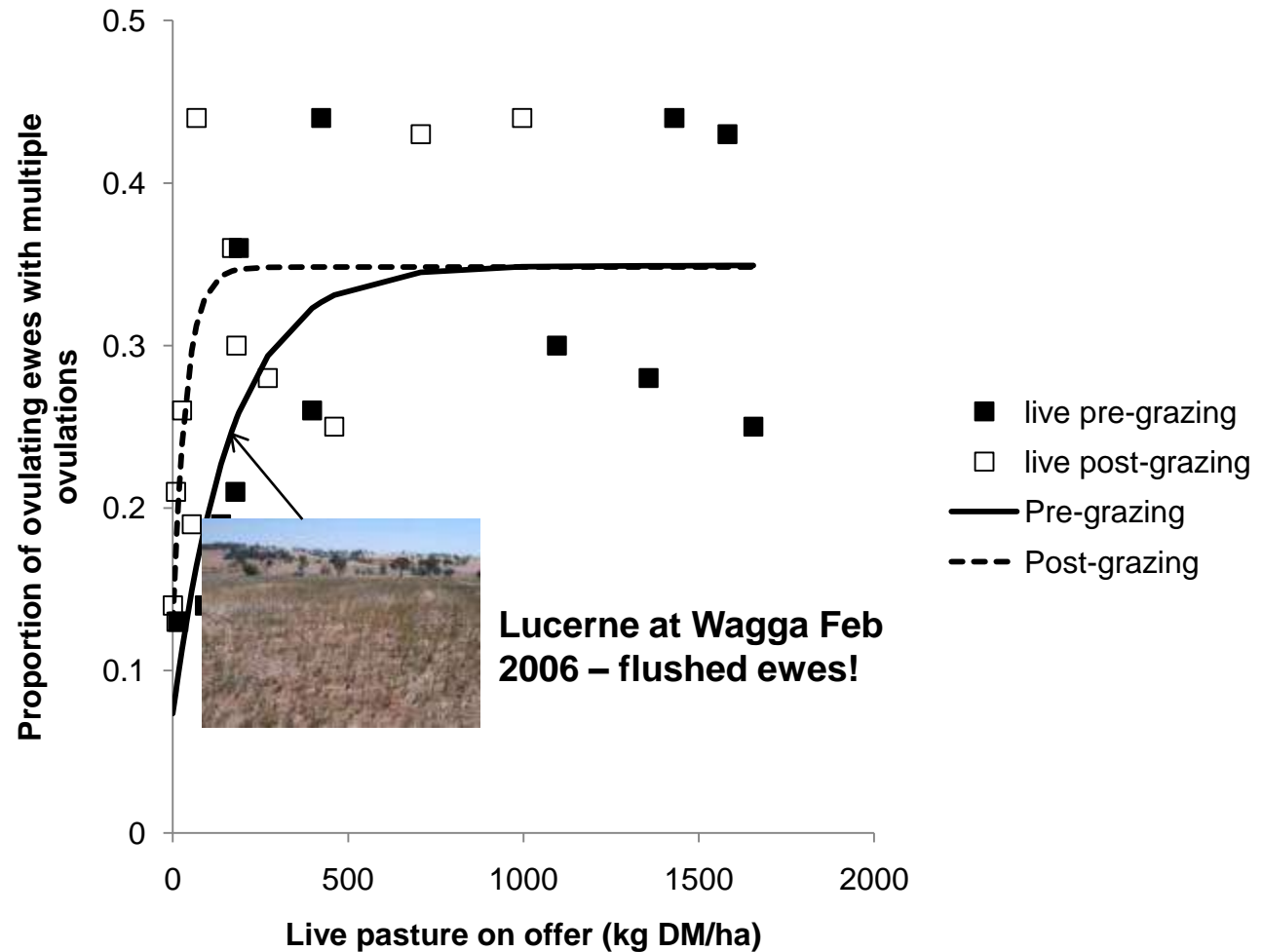
Green feed over joining can increase ovulation rate

Pasture flushing



Oestrus-synchronised ewes grazed plots for 9 days prior to ovulation

Relationship between multiple ovulations and live feed on offer



Green feed and flushing issues

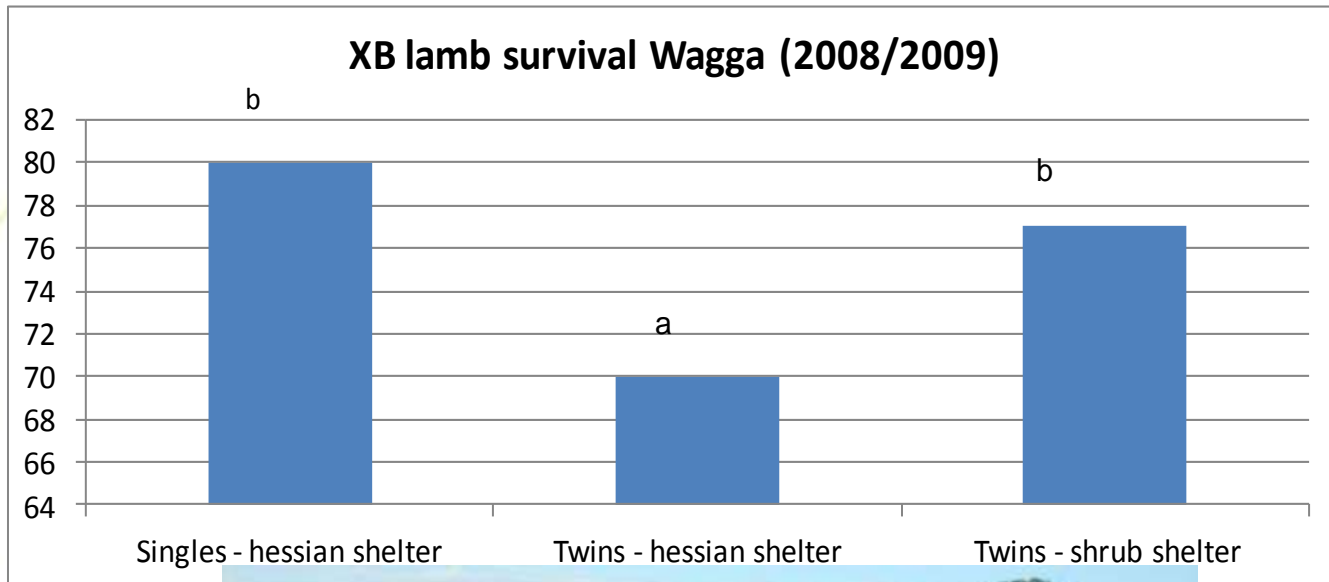
- Coumestans in lucerne, high feed intake
 - Manageable risks, but need more info on feed intake d11-12 of preg and risk of embryo mortality
- Reliability of green feed being available
 - Argument for lucerne
- Unsynchronised ewes
 - 2010 trial and supporting sites

	Jugiong 2009		Bookham 2009		Wagga 2010	
	Lucerne	Control	Lucerne	Control	Lucerne	Control
Twins %	44	34	67	20	66	65

Key Message 4

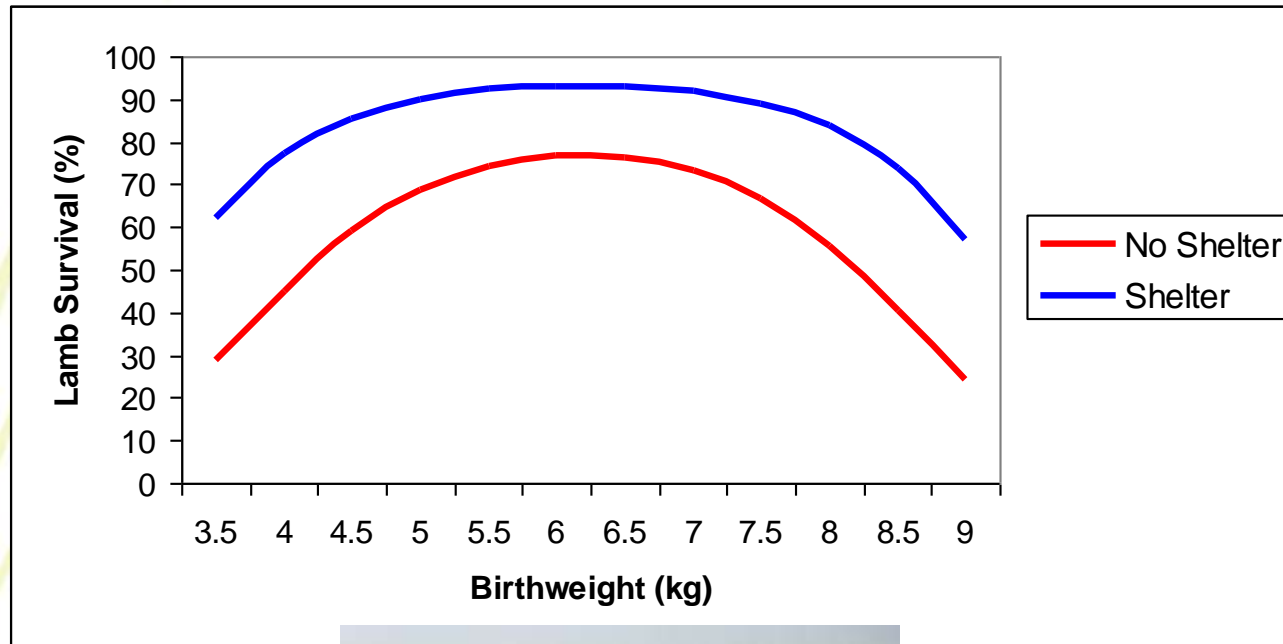
- Consider shelter for lamb survival, depending on location and lambing time

Lamb survival and shelter 1

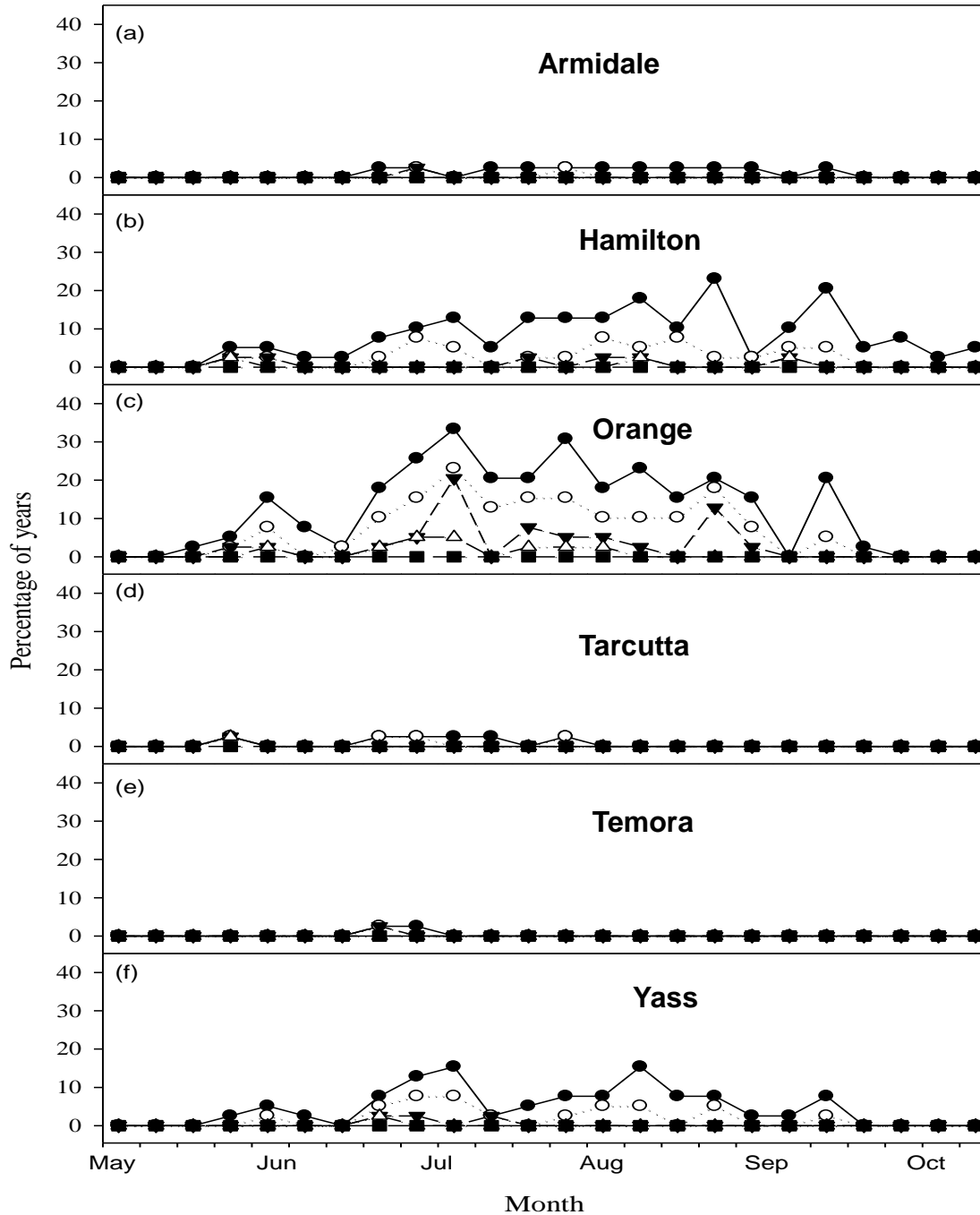


Lamb survival and shelter 2

Twin survival at Hamilton 2008-2009



Likelihood of median daily chill index exceeding 1100 kJ/m².hr for 24 weekly periods from May to October



25 (○ ○ ○ ○ ○) % wind speed
 50 (--- ▼ ---) % wind speed
 75 (--- △ ---) % wind speed
 100 (—■—) % wind speed

Gross Margins for Wagga site

