What does it cost to hit the LTEM targets?

Shawn McGrath, Fred Morley Centre
Jim Virgona, Graminus Consulting
Bruce Allworth, Fred Morley Centre

Lifetime Ewe Management (LTEM)

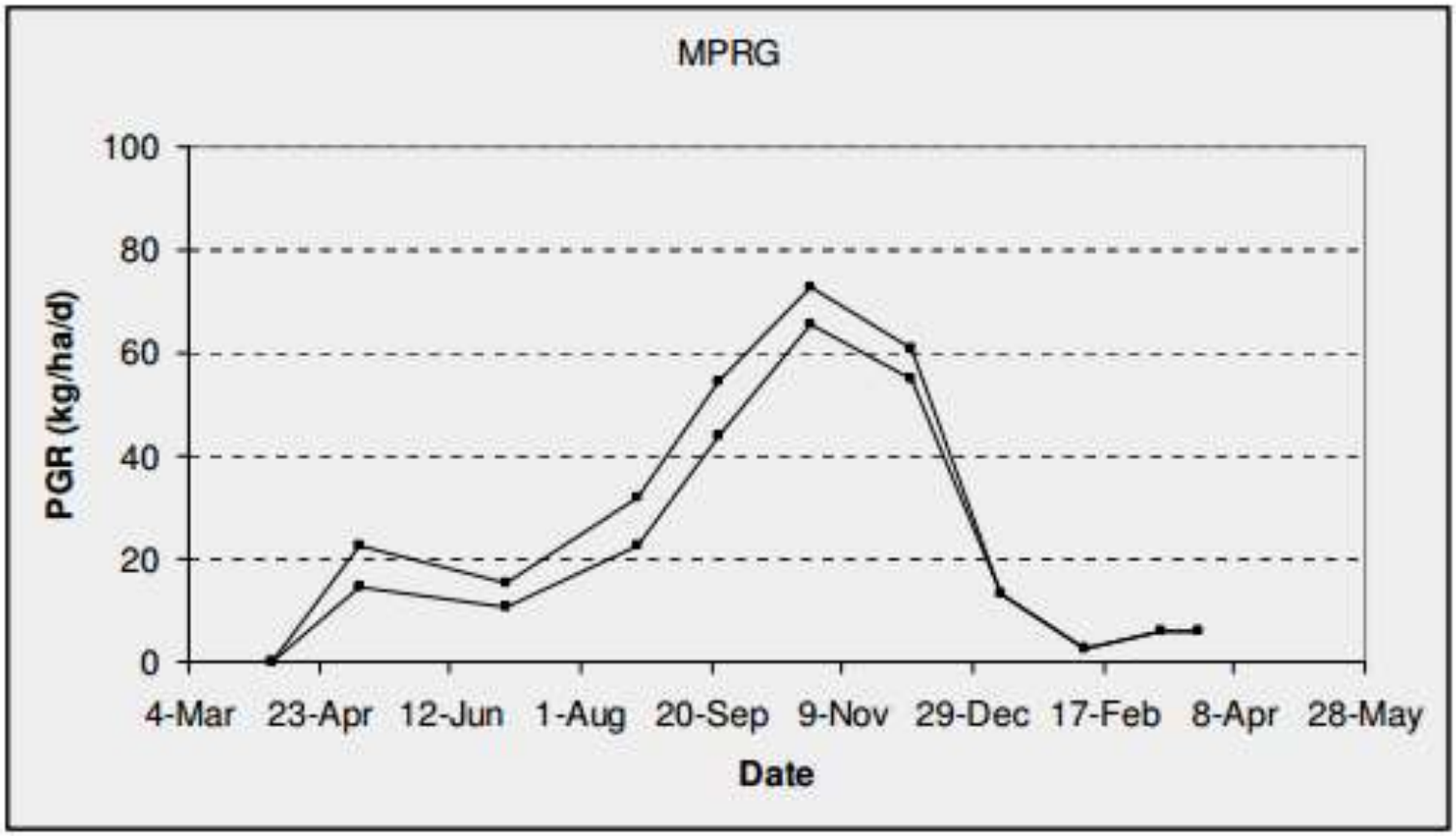
- www.lifetimewool.com.au

- “guidelines and recommendations for managing ewe flocks throughout the year”.

- Regionally specific

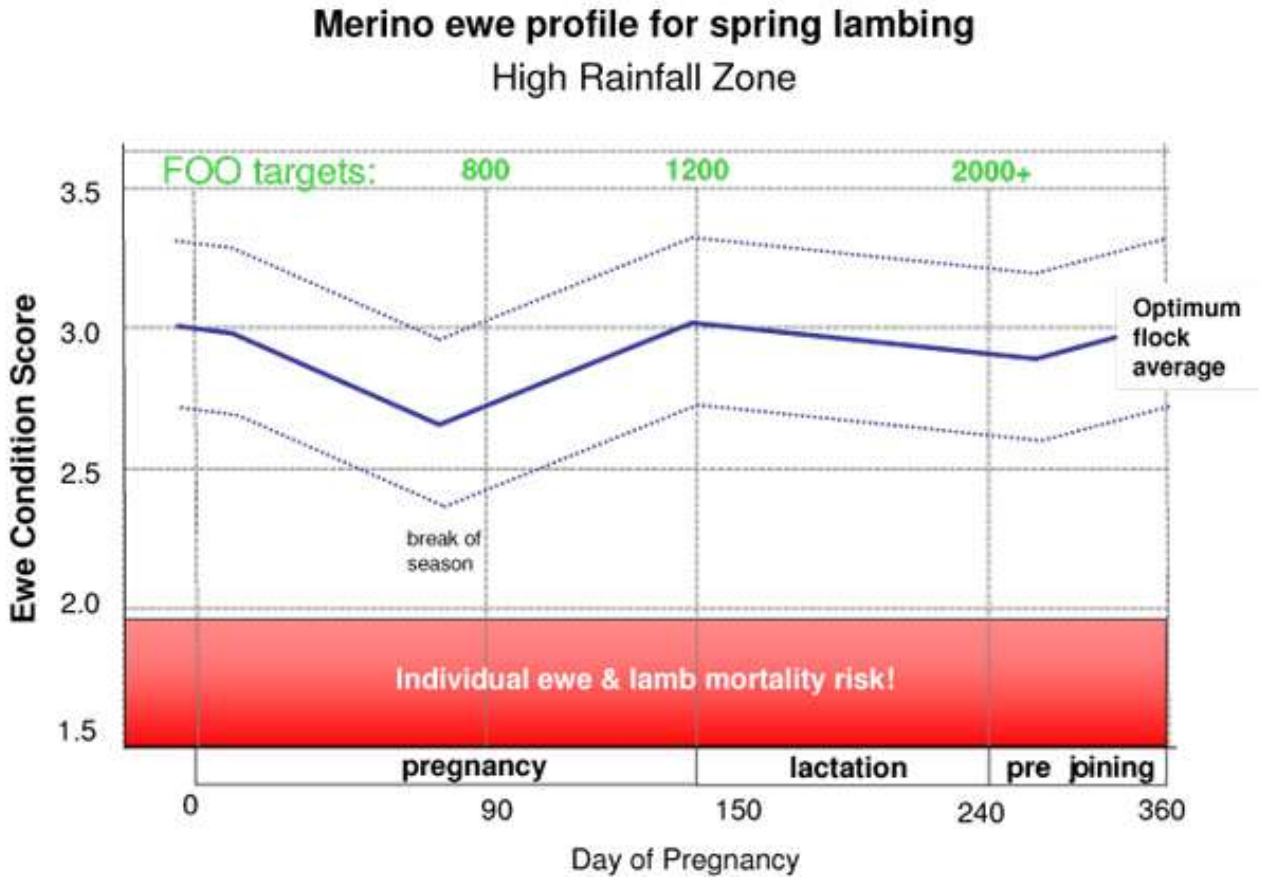
- Use of MIDAS models
  - High Rainfall Zone (>550mm) – Hamilton, VIC
  - Medium rainfall zone – Wagga, NSW
  - Static model
  - Optimises animal and pasture management across the farm
  - Comparing economic outcomes of different management

MIDAS pasture productivity assumptions – medium productivity perennial ryegrass pasture



www.lifetimewool.com.au

Optimal BCS profile



www.lifetimewool.com.au

Optimal BCS – key points

- Use green feed to increase BCS from scanning to lambing
  - Feeding grain to increase condition not likely to be economic
  - If can't increase based on green feed, don't allow the ewes to lose condition
  - Timing of lambing therefore important

- Profile based on average pasture production year
  - But pasture growth curve is different every year
    - No Seasonal variability
    - No "carry-over" effect from year to year

Managing condition score – the case for scanning

- “Pregnancy scanning for multiples every year is not negotiable” (More Lambs More Often manual)

- Nutritional requirements of twin bearing ewes are:
  - 25% higher than single bearing ewes
  - Nearly double requirements of dry ewes

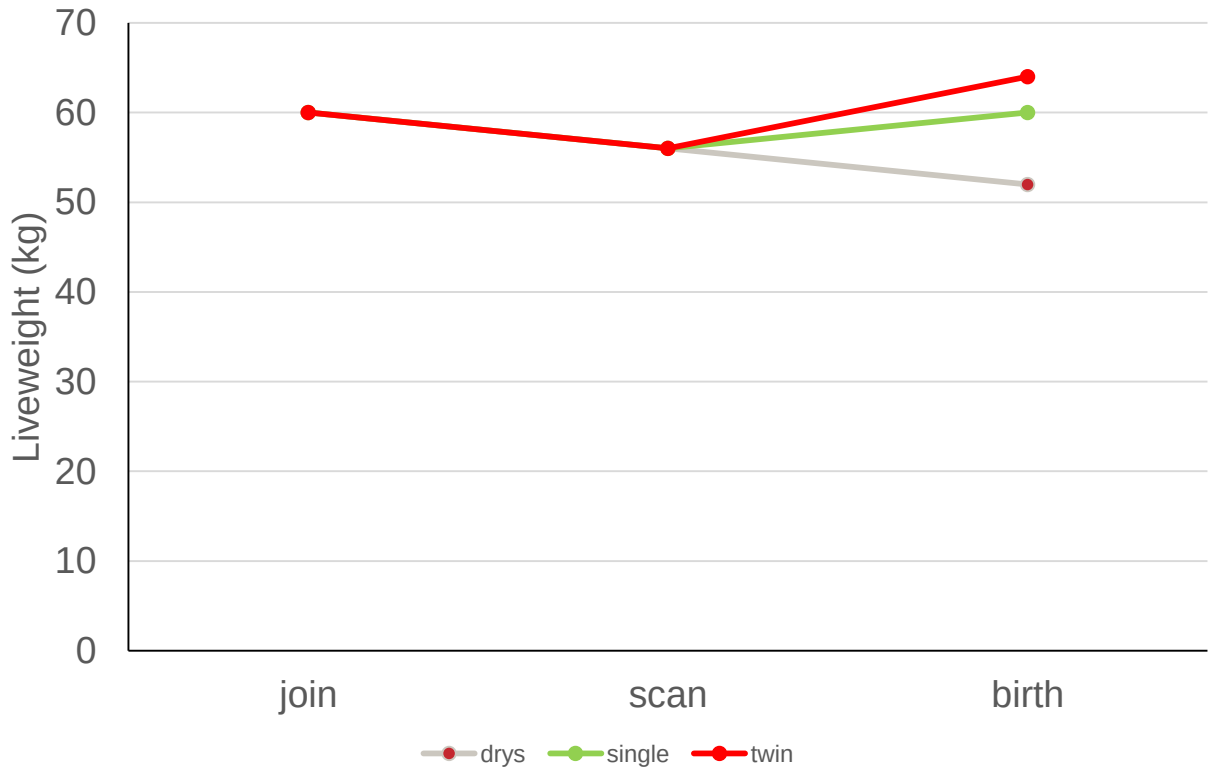
- Differential management of drys/singles/twins to nutritional requirements
- Also other management
  - Shelter for twins
  - Smaller mob size

Managing condition score – cont.

- Young *et al.* (2016):
  - Scanning increased profit $4.63/ha (preg scanning 80c/ewe)
  - Benefit mainly due to differential management twins/singles (contrast to Sheep CRC)
    - Benefit increases as scanning rate increases
    - Model links BCS with birth weight and survival
    - Decreased feeding 5 kg/DSE
    - Increased lambing percentage by 1%

  - Scanning for pregnancy alone only profitable when:
    - scanning percentage <120% and
    - dry ewes >8%.

Optimal liveweight changes – Young *et al.* (2016)



Looking at a local scenario… Holbrook

- Use a dynamic model – AusFarm
  - Biological models
  - Apply weather data for multiple years
  - Carry-over effect from year-to-year
  - variation
- Allows multiple management rules to be applied

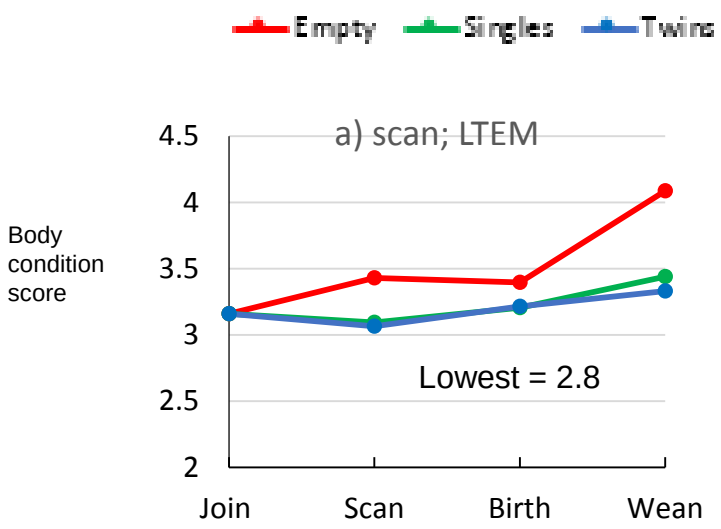
Model parameters

- 1000 hectare property at Holbrook
  - 960 hectares improved pasture (phalaris/sub) + 40 ha low-value area
- Rotationally grazed
- Events:
  - Self-replacing medium-Merino flock
  - Moderate fertility (68% single/28% twins)
  - Joining - start April (44 days)
  - Scanning (where applicable) – early July (90 days)
  - Lambing – from start September
  - Weaning – November (12 weeks from start lambing)
  - Lamb sale – prior to joining (or weaning if insufficient feed)
  - Shearing - March (25 days pre-joining)

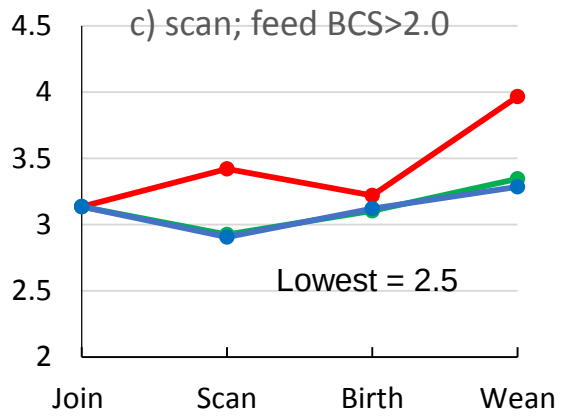
Model variations

1. Lifetime Ewe Management guidelines
   - Feed to BCS 3.0 at joining
   - Allow weight loss to min 2.6 at scanning
   - BCS to min 3.0 at lambing
   - Maintain above BCS 2.5 until weaning
2. Lower supplementation
   - Feed to BCS 3.0 at joining.
   - Maintain above 2.0 remainder of year
3. Pregnancy scan
   - Scan 90 days after joining
   - Differentially manage twin- and single-bearing ewes to meet BCS targets – twins get allocated priority paddocks/larger relative area; dry ewes to low-value paddock
4. No pregnancy scanning
   - Ewes continue to be run as single mob.

Cost of following LTEM – scanned flocks



Stocking rate = 7 ewes per hectare



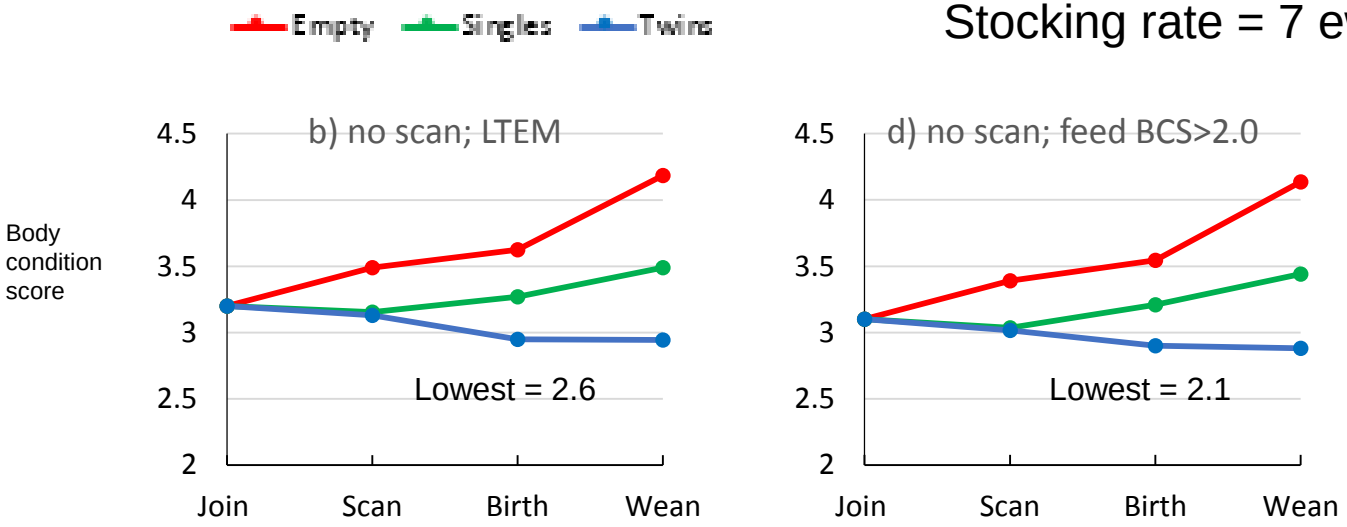
LTEM having minimal effect on median BCS profile

Cost LTEM:

- Increase 10 kg supplement fed per ewe
- Increase 2 kg/ha lamb sold
- Reduce median GM return by $4/ha
- Slightly more variability (risk) in returns

Unscanned flocks – difference is greater

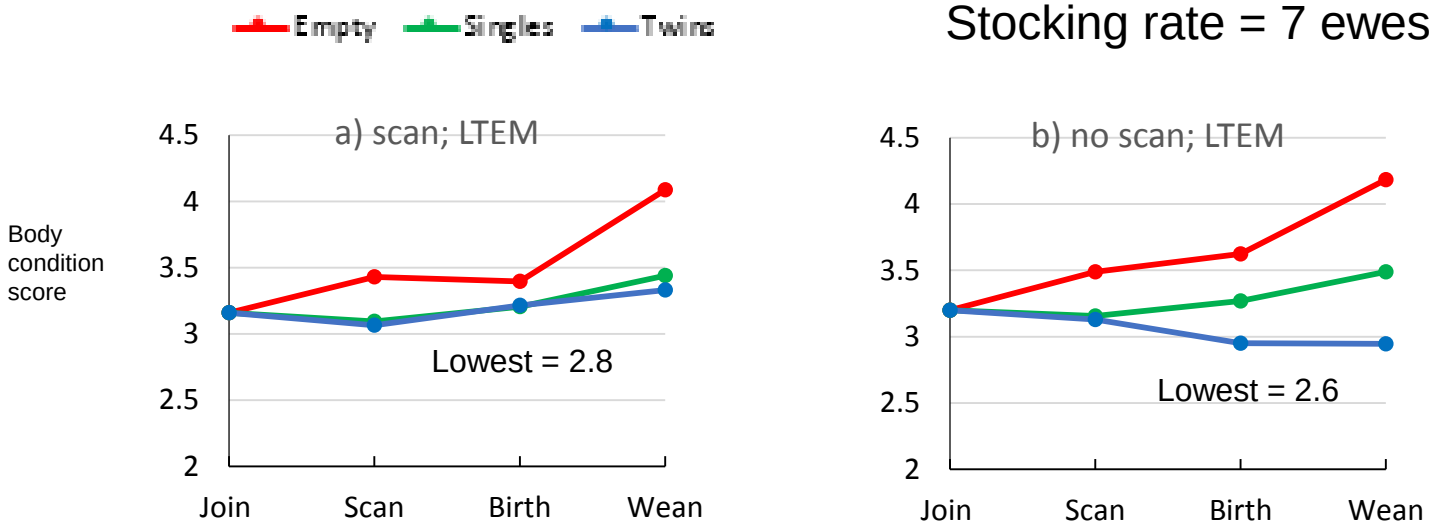
Stocking rate = 7 ewes per hectare



Cost LTEM:

- Increase 4 kg median supplement fed per ewe
- No (little) difference lamb sold (kg/ha)
- Reduce median GM return by $10/ha
- Slightly more variability (risk) in returns

Scanning – defining costs and benefits



Stocking rate = 7 ewes per hectare

Differential management – large effect on BCS of twin-bearers

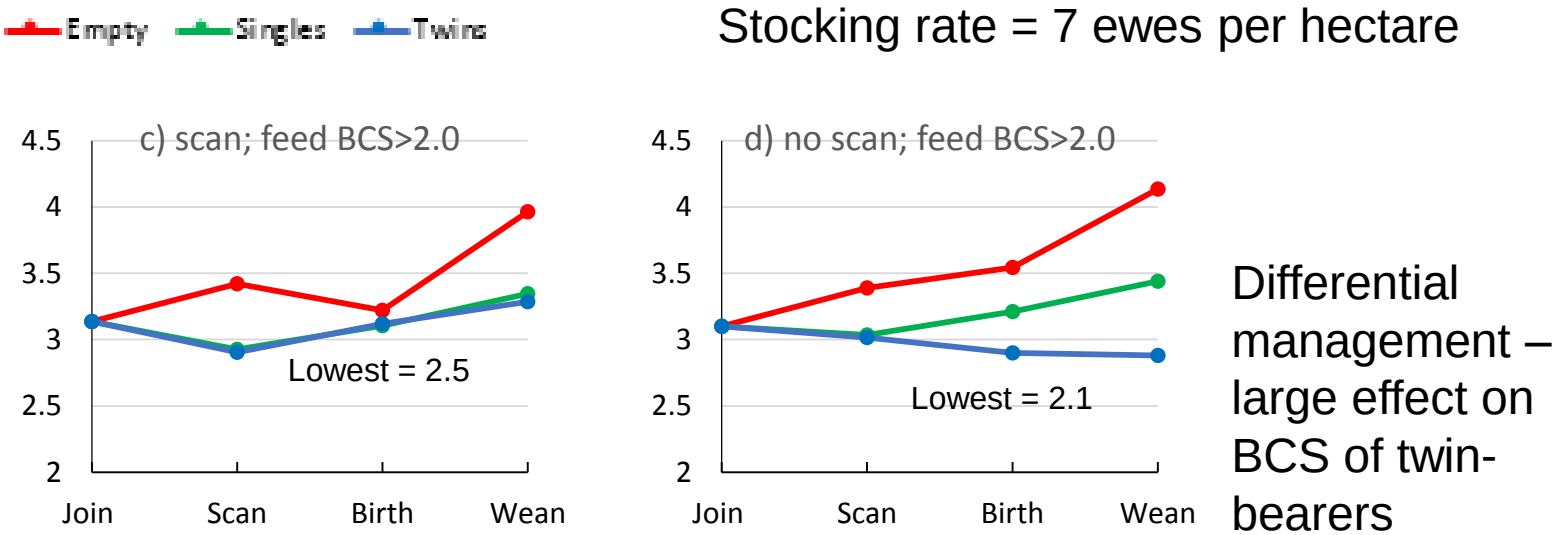
Still BCS>3.0 in high proportion of years

Cost Scanning (with LTEM):

- Increase 2 kg supplement fed per ewe
- Increase 1 kg/ha lamb sales
- Minimal effect on GM (at $250 MT grain cost)

Note for the interested – year of lowest BCS at birth (twins) was 1976

Scanning with low feed regimen



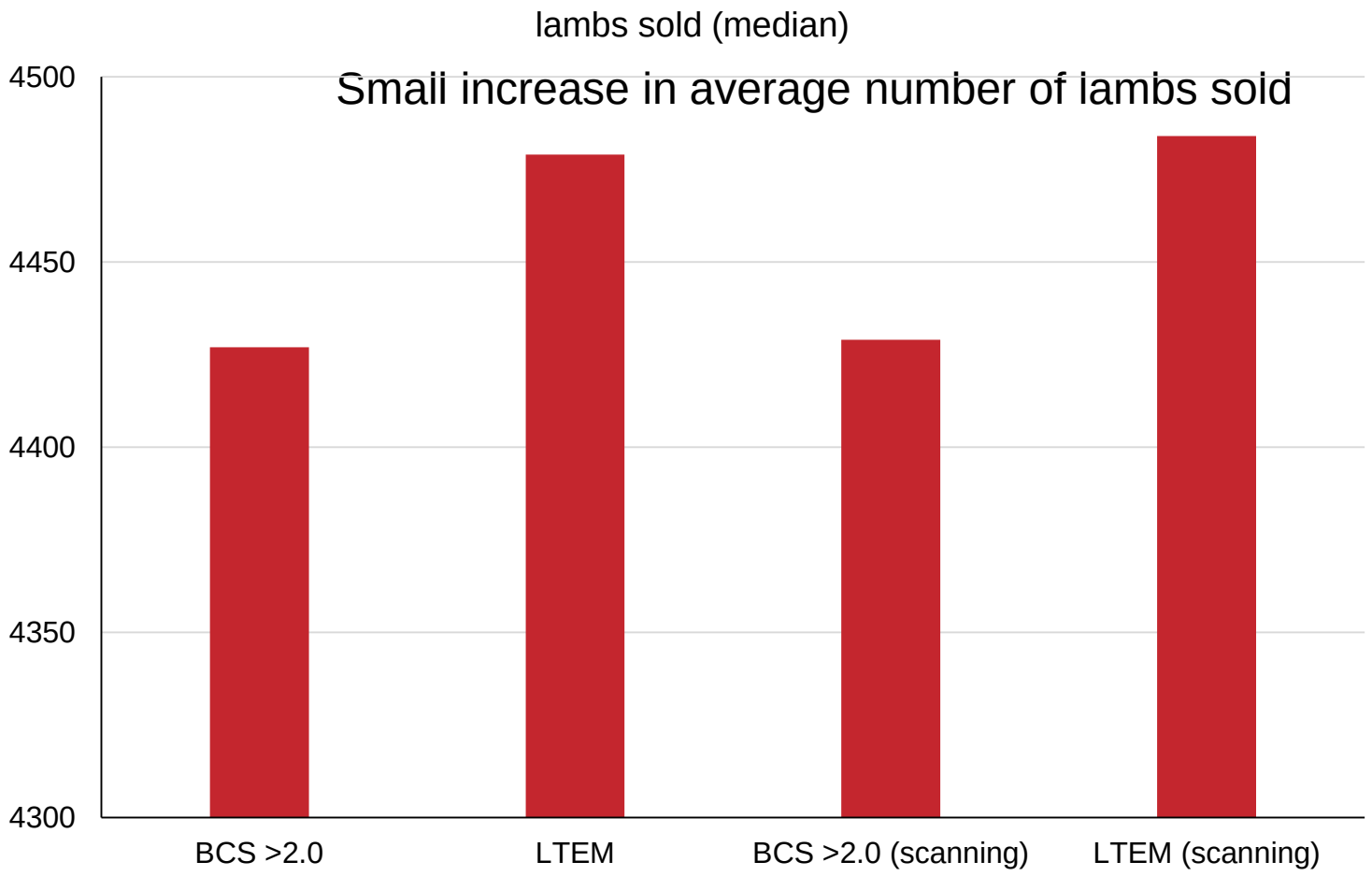
Stocking rate = 7 ewes per hectare

Differential management – large effect on BCS of twin-bearers

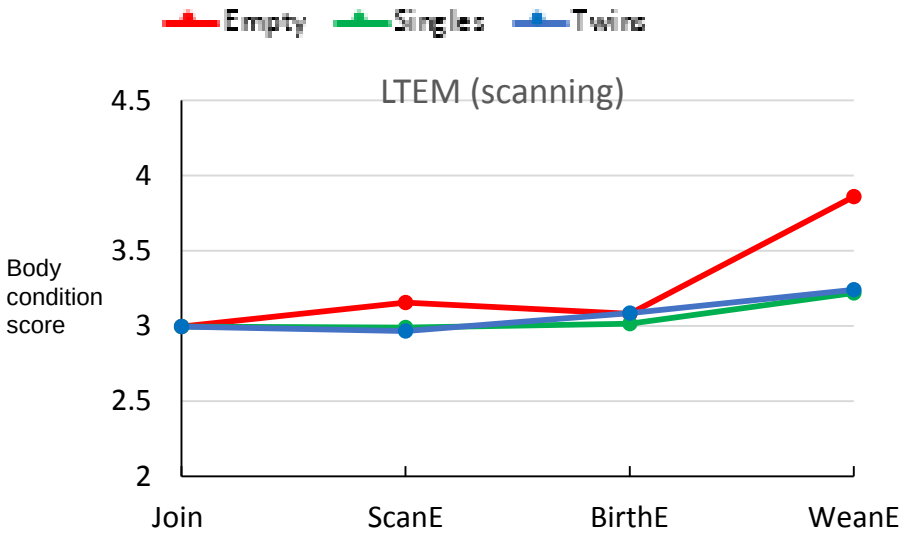
Cost Scanning (low feeding regimen):

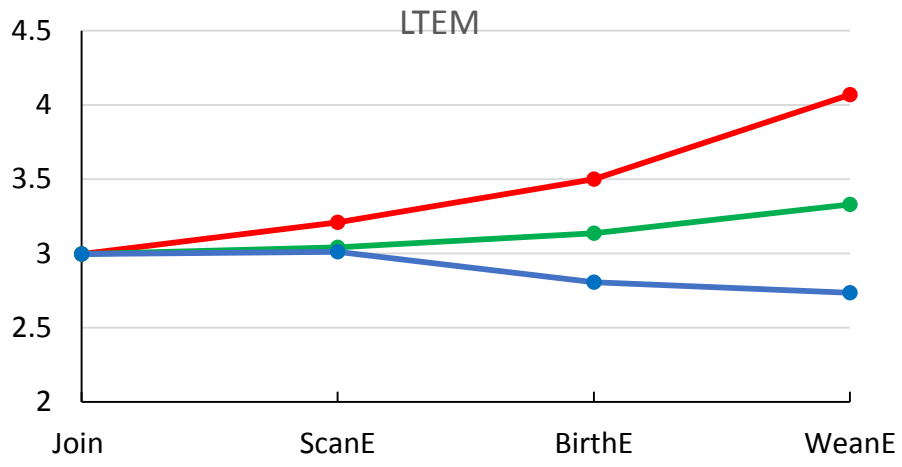
- DECREASE median supplement fed per ewe (4kg/hd)
- Increase 1 kg/ha lamb sales
- Reduce median GM return by $7/ha

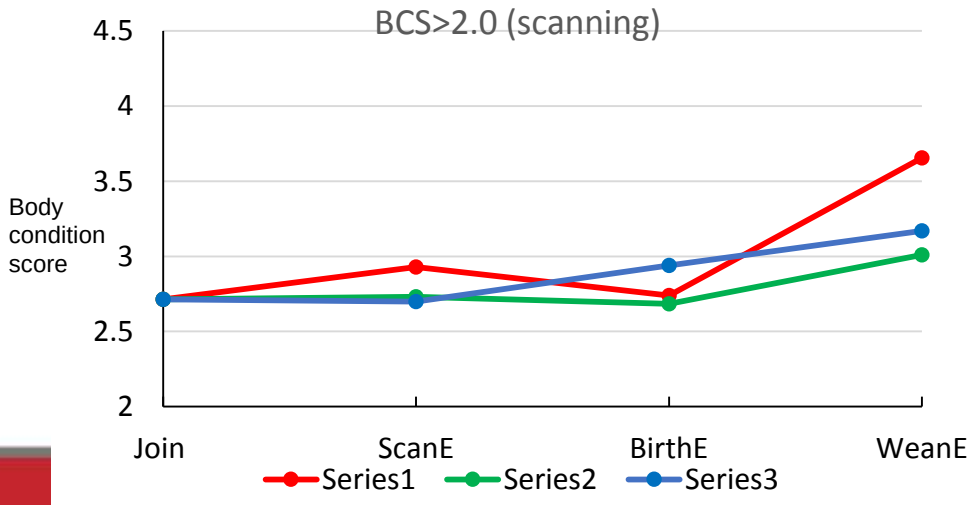
How many lambs are being sold (median)?

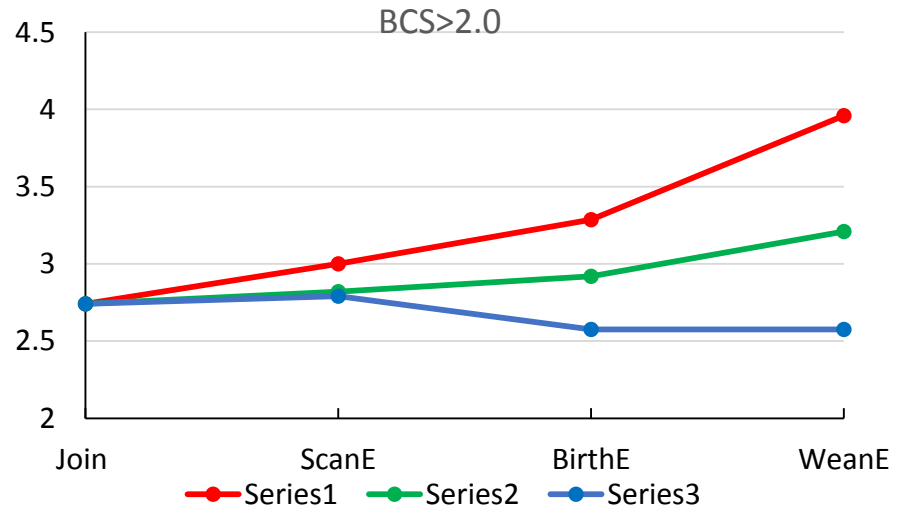


System under more pressure – 9 ewes per ha









Conclusions

- Dynamic modelling shows that often can hit BCS targets without scanning or feeding (LTEM) when lambing time matches pasture growth
- Scanning allows higher BCS for twin-bearing ewes
- Scanning negligible effect on no. lambs sold
- LTEM small increase in no. lambs sold in AusFarm model
- Not make strong case for scanning or additional feeding to meet BCS targets
  - Merino flock, September lambing, Holbrook

- Other benefits are not accounted for:
  - Wool quality
  - Effect on progeny lifetime production
  - Potential of other differential management to increase survival

Celi and Bush (2010)

Benefits of pregnancy scanning	*Disadvantages of pregnancy scanning*
More precise flock and lambing paddock management	More mobs to manage and stress of extra handling in some seasons
More targeted use of feed supplements when economically justified or allocation of dry, single bearing and twin bearing ewes to appropriate feed resources	More labour intensive when scanning and managing for multiple births
Targeted management (more shelter and privacy) of twin bearing ewes to protected paddocks to improve lamb survival	Potential for mismothering when twinning mobs are run together under high stocking rates at lambing
Non-pregnant ewes can be run as dry sheep for wool production or culled and sold if feed resources are limited	Late lambing mob to manage where dry ewes are rejoined and the normal breeding cycle on the farm is disrupted
Basis for careful fodder budgeting and forward planning of pasture utilisation to achieve high reproduction rates and/or target markets	Potentially an additional and unnecessary cost in low twinning flocks
Likely to be most cost effective in drought years or when ewes are mated at low condition score and maidens at low body weight	More precise management required and this may compete with other farm operations
Twins can be managed with better pasture in lambing mobs with a high proportion of twins. They can be run in protected paddocks or where twins are separated there could be a saving in supplementary feed costs	Opportunity cost of scanning and extra labour
May identify where reproductive losses are in the breeding cycle	

Source: AWI and MLA (2008).

Charles Sturt University

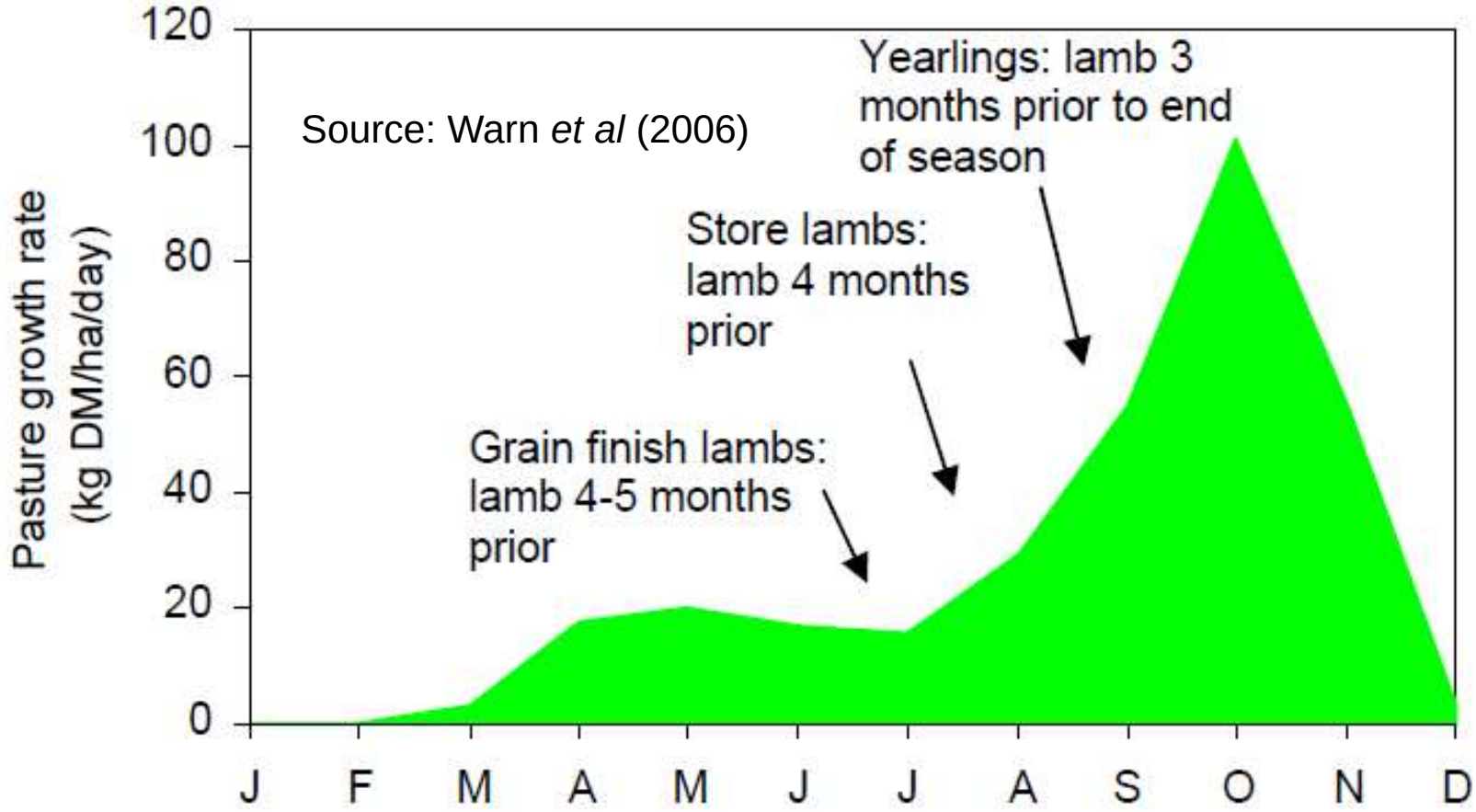
Managing condition score – the case for scanning

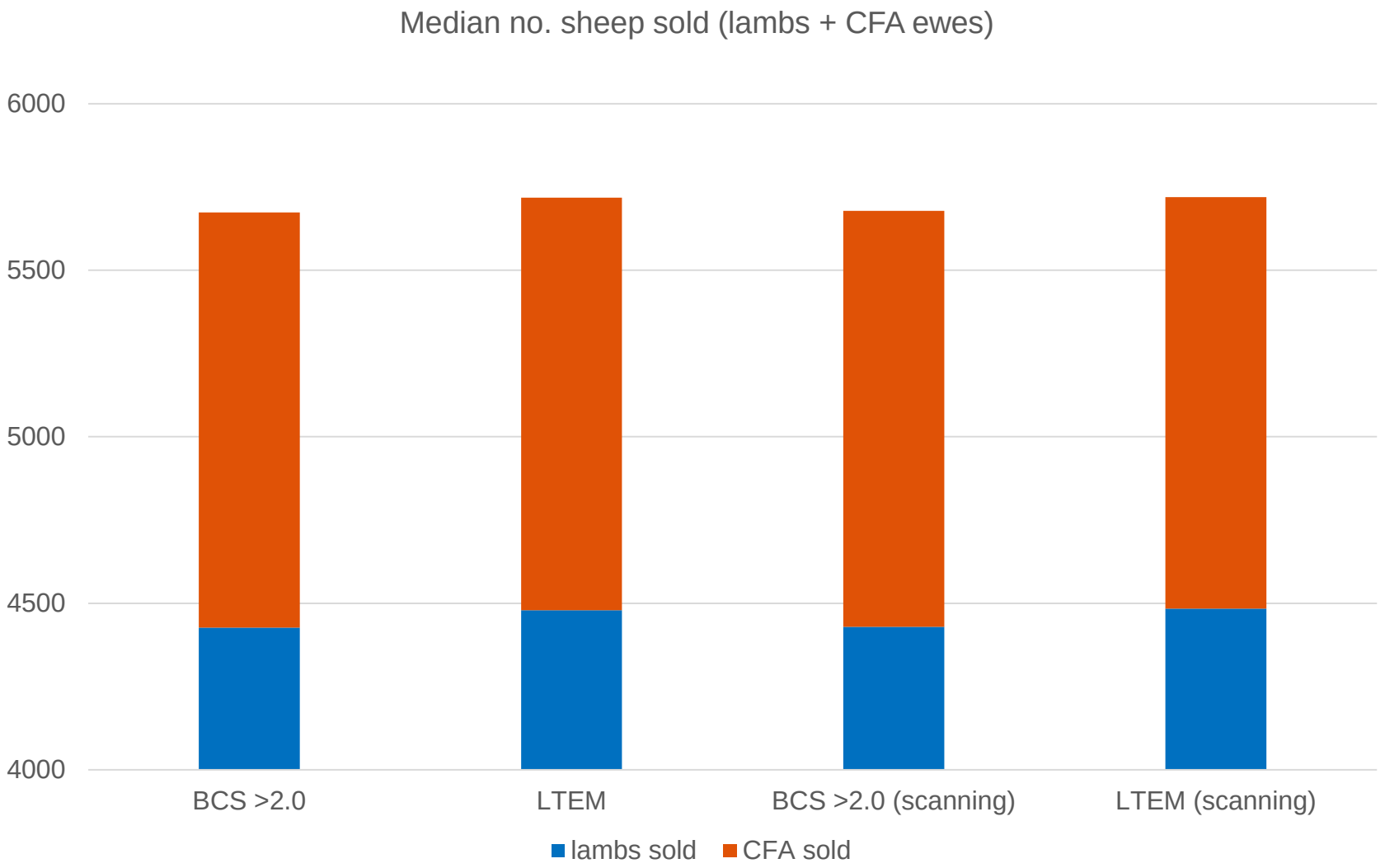
- Midas modelling (Young, Thompson and Oldham, www.sheepcrc.com.au):
  - 75% of benefit due to less feed to drys/more to pregnant ewes
  - 25% of benefit from reallocation of feed between singles and twins
  - Therefore pregnancy rate important!
  - $8.82/ha increase in profit
    - @ 50 c/hd scanning rate
    - Optimised model

Source: www.sheepcrc.com.au

Optimal lambing time

...is related to length of growing season and target market




Median no. sheep sold (lambs + CFA ewes)
6000
5500
5000
4500
4000
BCS >2.0
LTEM
BCS >2.0 (scanning)
LTEM (scanning)
lambs sold
CFA sold