CRC for Premium Quality Wool

# Management of Annual Pastures for Wool Production: Strip Grazing

Produced for the CRC for Premium Quality Wool undergraduate program by;
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# Green Feed on Offer (FOO)

- FOO (kg DM per ha) is an indicator of the balance between pasture growth rate and rate at which it is consumed by stock:
  - growth > removal: FOO increases
  - growth = removal: FOO maintained
  - growth < removal: FOO declines
- FOO vs production targets, example:
  - control wool growth: FOO 1000-1500
  - maximise liveweight gain: FOO > 2500
  - maximise legume seed set: FOO > 3500
- FOO relationships less reliable from flowering onwards

Brad Crook
Source: Doyle et al. (1994)

# Strip (ration) grazing

- rationing of pasture to sheep by confining them to small areas (breaks) within a paddock for short periods
- pasture intake set to achieve pre-determined performance level, given class of sheep and nutrient requirements

$$\text{Area of break} = \frac{\text{No. of sheep} \times \text{feed intake} \times \text{no. days between shifts}}{\text{Pre-grazing FOO} - \text{Post-grazing FOO}}$$

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Source: Doyle et al. (1994)

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# Strip grazing vs set-stocking: Kojonup, WA

- autumn deferment until green FOO was 400-800 kg DM per ha, followed by set-stocking or strip grazing from early winter to late spring, at 20 wethers per ha.
- strip grazing conditions:
  - 0.8 kg green DM per day to maintain live weight
  - residual FOO of 400 kg DM per ha (shifts every 2-4 days)
  - excess pasture areas (FOO >3500) removed by grazing with large flocks to simulate mowing for silage

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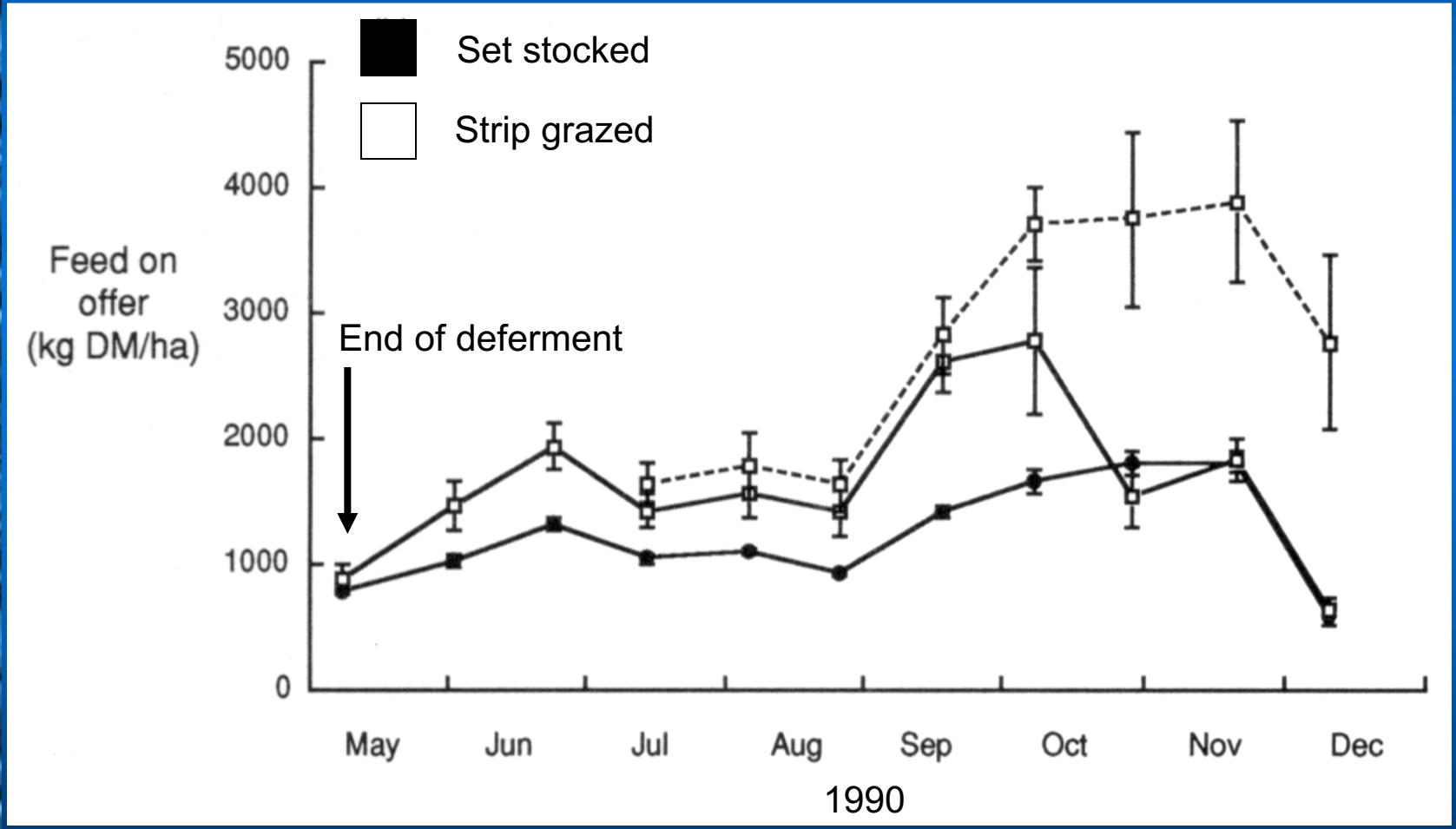
Source: Doyle and Thompson (1992); Doyle et al. (1992); Doyle et al. (1994)

# FOO under set stocking and strip grazing with 20 wethers per ha: Kojonup, WA

## Dotted lines for strip grazing represent estimates of FOO if surplus feed had not been removed

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Source: Doyle et al. (1994)

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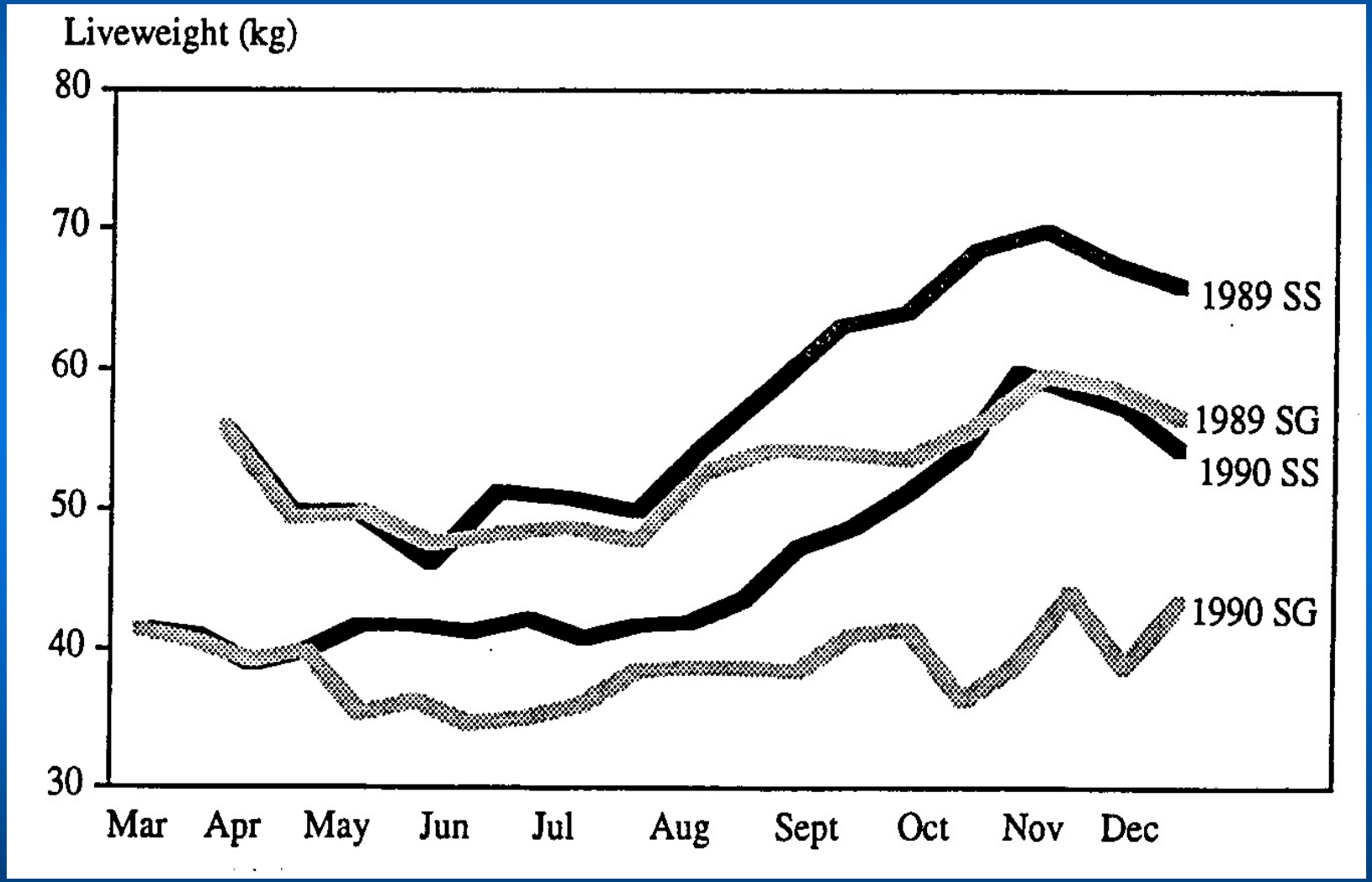
# Live weight of wethers either set-stocked (SS) or strip-grazed (SG) at 20 per ha during winter and spring

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Source: Doyle and Thompson (1992))

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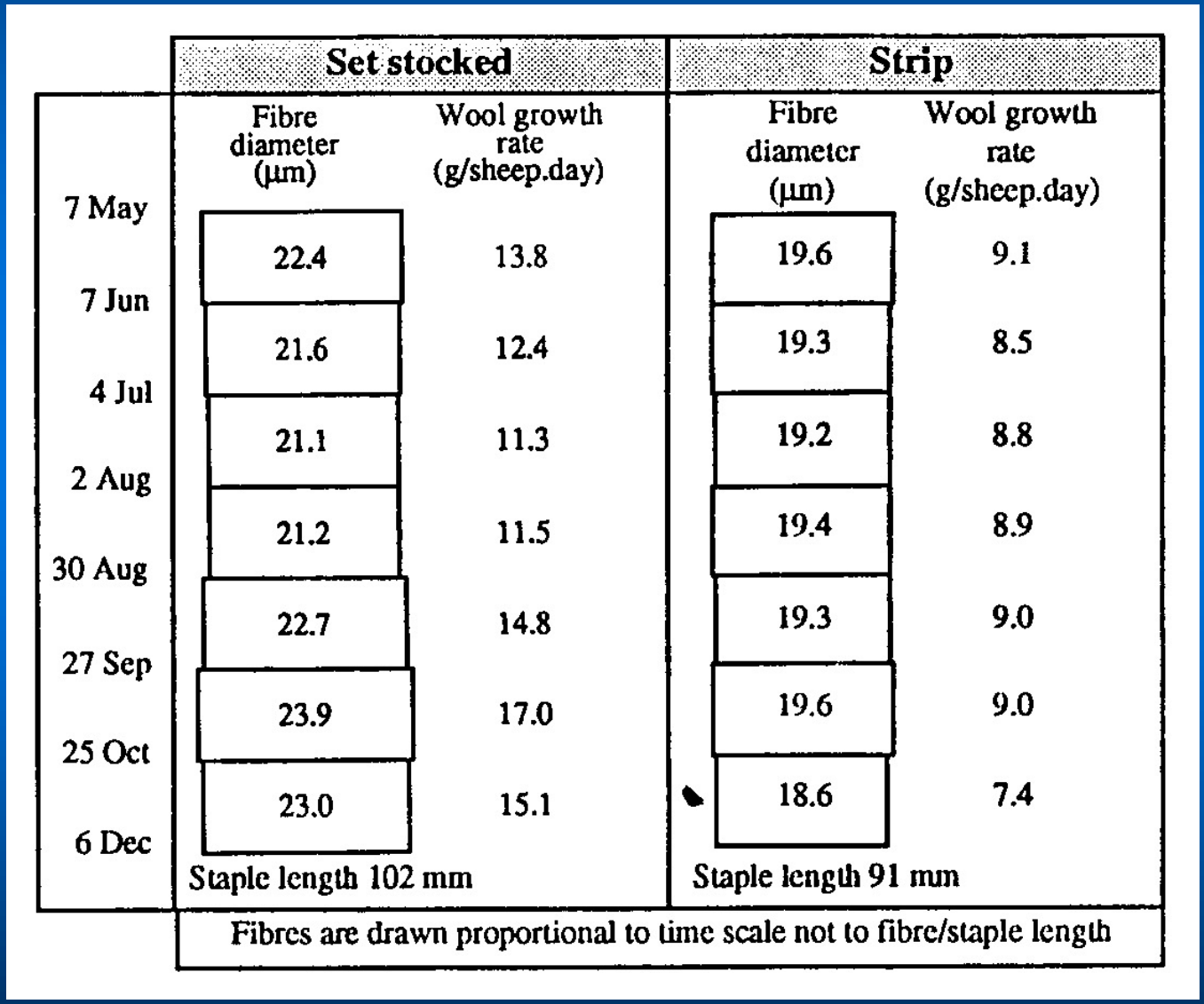
# Average diameter profile for wethers either set-stocked (SS) or strip-grazed (SG) at 20 per ha during winter and spring

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Source: Doyle and Thompson (1992))

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| | 1990 | | 1991 | |
|---|---|---|---|---|
| | SS | SG | SS | SG |
| Stock. rate (hd per ha) | 20 | 20 | 12 | 28 |
| Clean wool, kg per head | 3.85 | 2.68 | 4.54 | 3.40 |
| Clean wool, kg per ha | 77 | 53.6 | 54.5 | 95.2 |
| Fibre diameter (μm) | 21.0 | 18.5 | 20.9 | 19.1 |
| CVFD% | 21.0 | 20.1 | 25.3 | 23.6 |
| Staple length (mm) | 102 | 91 | - | - |
| Staple strength (N/ ktex) | 33 | 38 | - | - |
| POB (% from tip) | 33 | 52 | - | - |
| Gross income ($ / ha) # | 530 | 511 | 381 | 809 |

# c/kg clean based on diameter only (1996-97 season)

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Source: Doyle and Thompson (1992))

# Conclusions:

- **Strip grazing:**
  - aimed to maintain live weight, so less feed consumed
  - allowed greater pasture growth rates due to leaf area index, giving additional feed at start of spring
  - enabled above-average stocking rates in winter without supplementary feeding (unlike set-stocking in 1989)
  - live weight maintenance and reduced seasonal variation in wool growth rates & fibre diameter
  - more uniform nutrient recycling
- **What are the long-term effects on pasture composition, persistence, nutrient status, animal production (for different levels of sheep performance)?**

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