Tools for managing pasture

John Roche
Principal Scientist, Animal Science
Managing Director, Down to Earth Advice Ltd.

Room service for Stacey Hamilton

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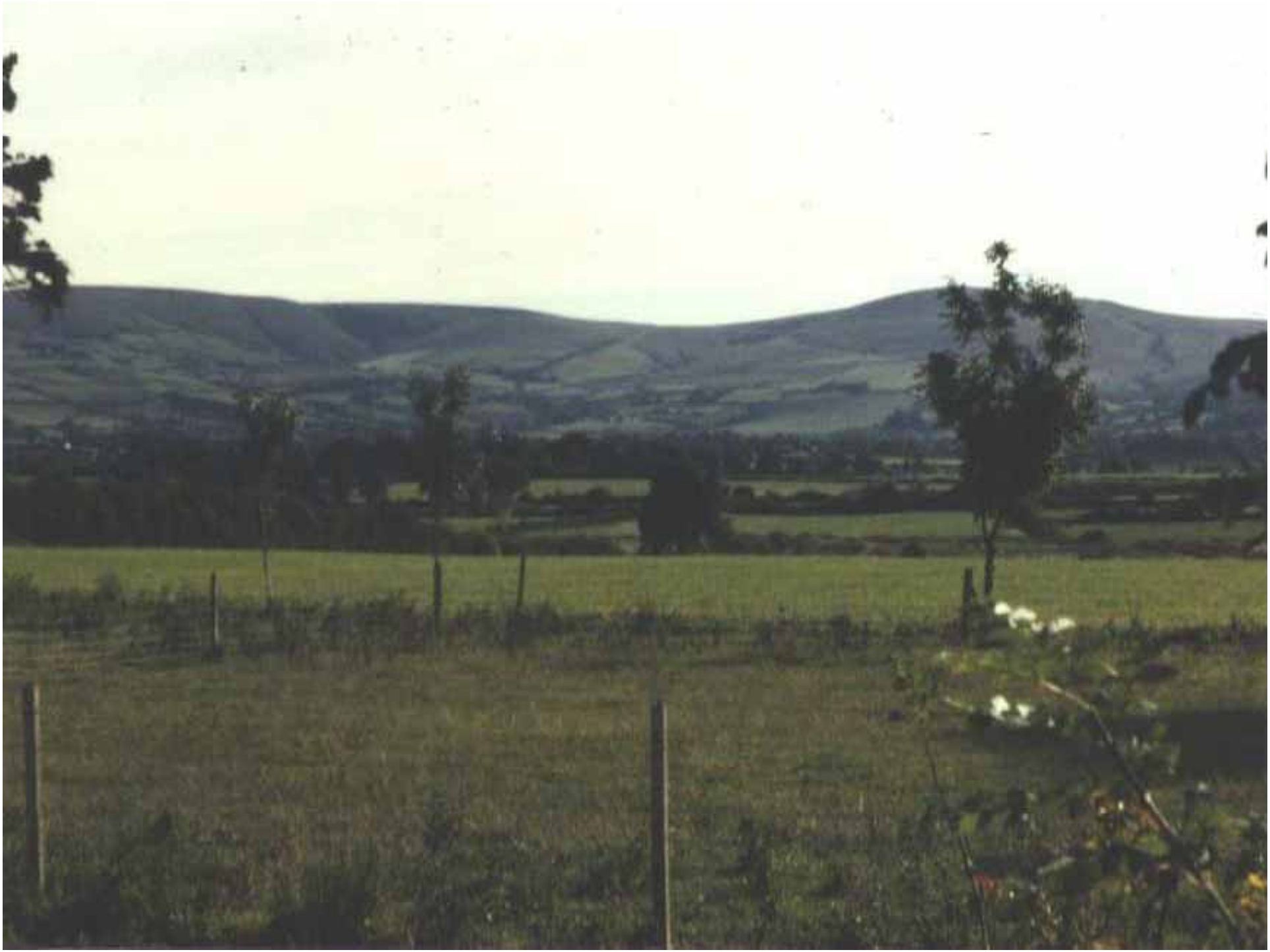
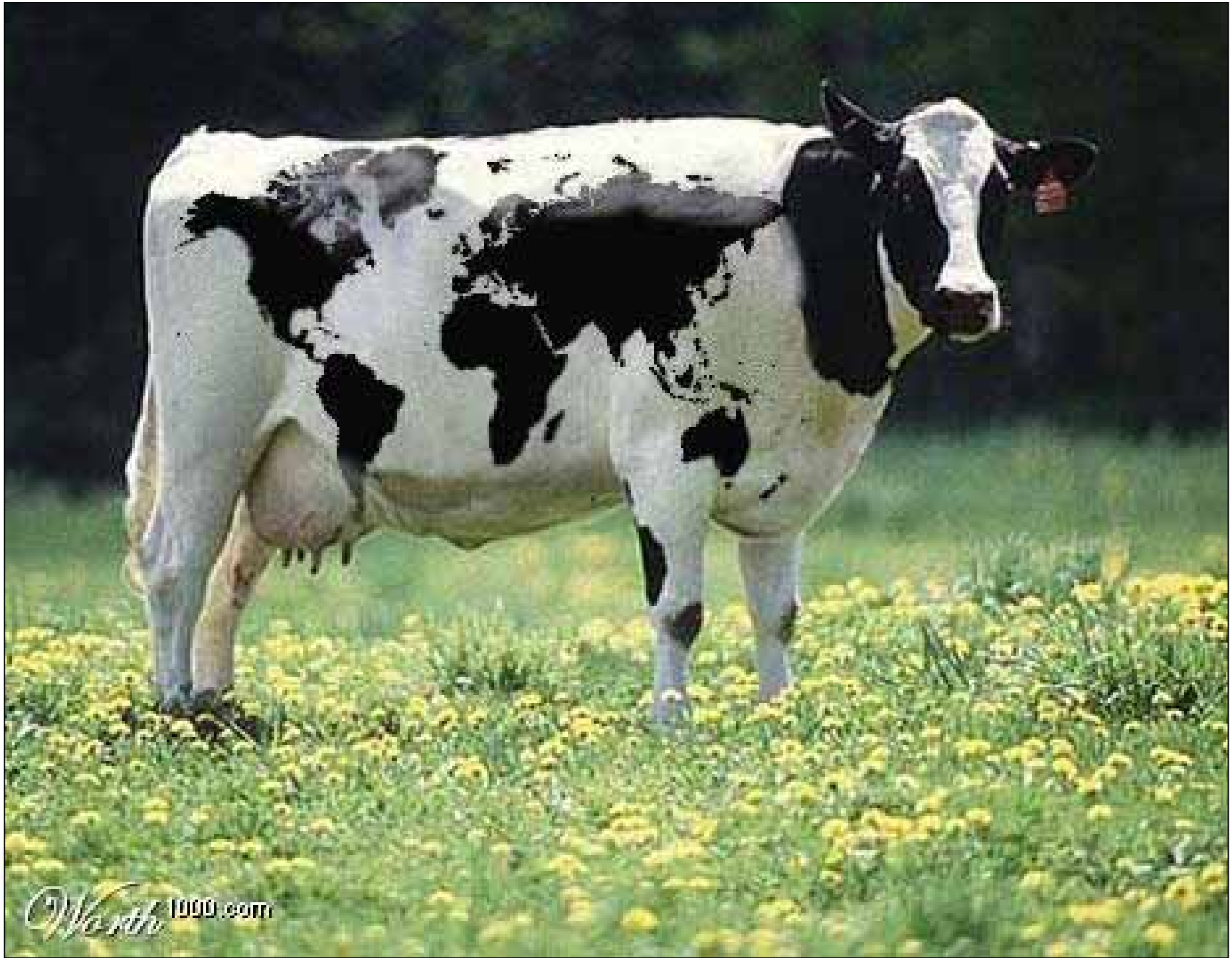



05/03/2008


Worth1000.com

Objective: To grow and utilise as much pasture as possible

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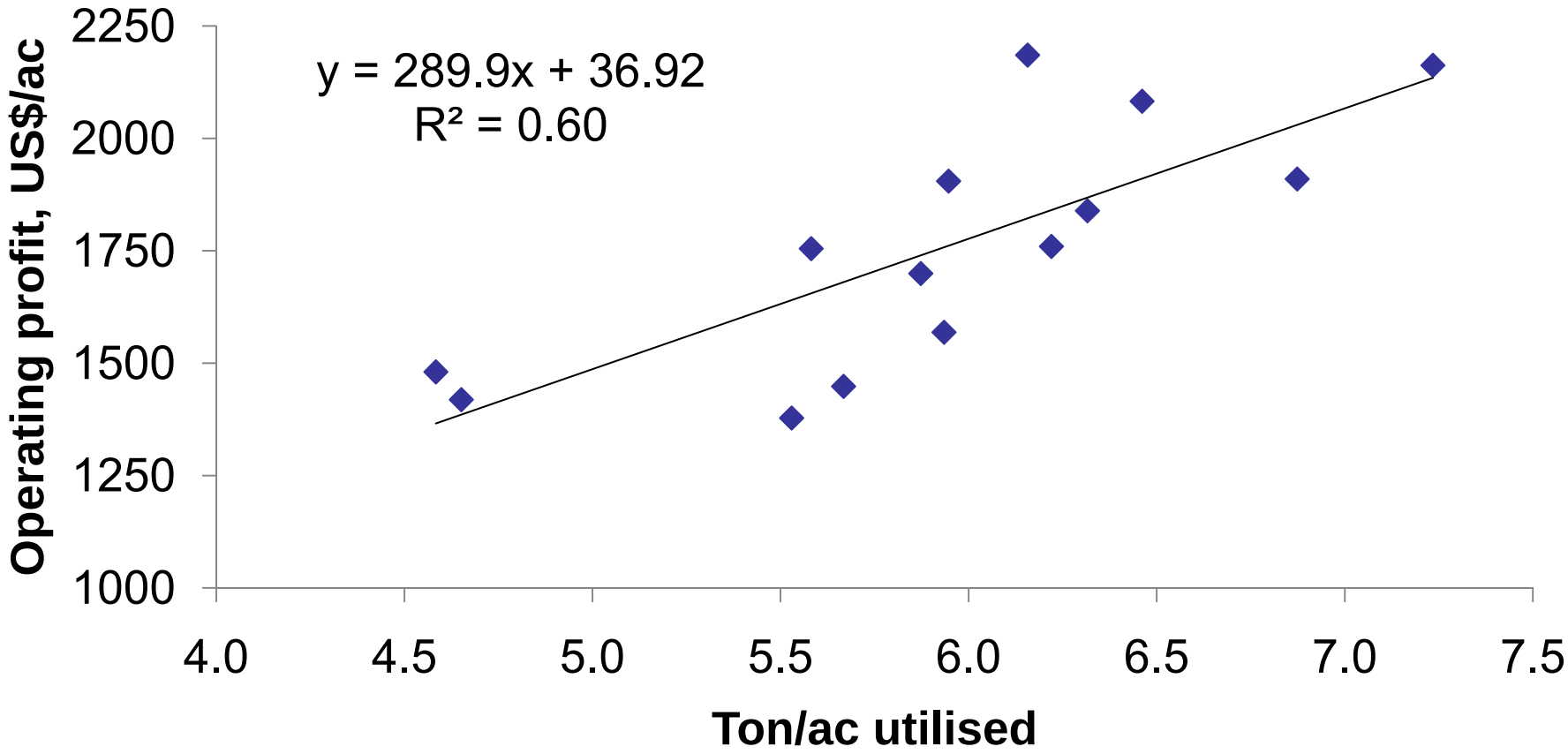
Pasture Utilised & Operating profit



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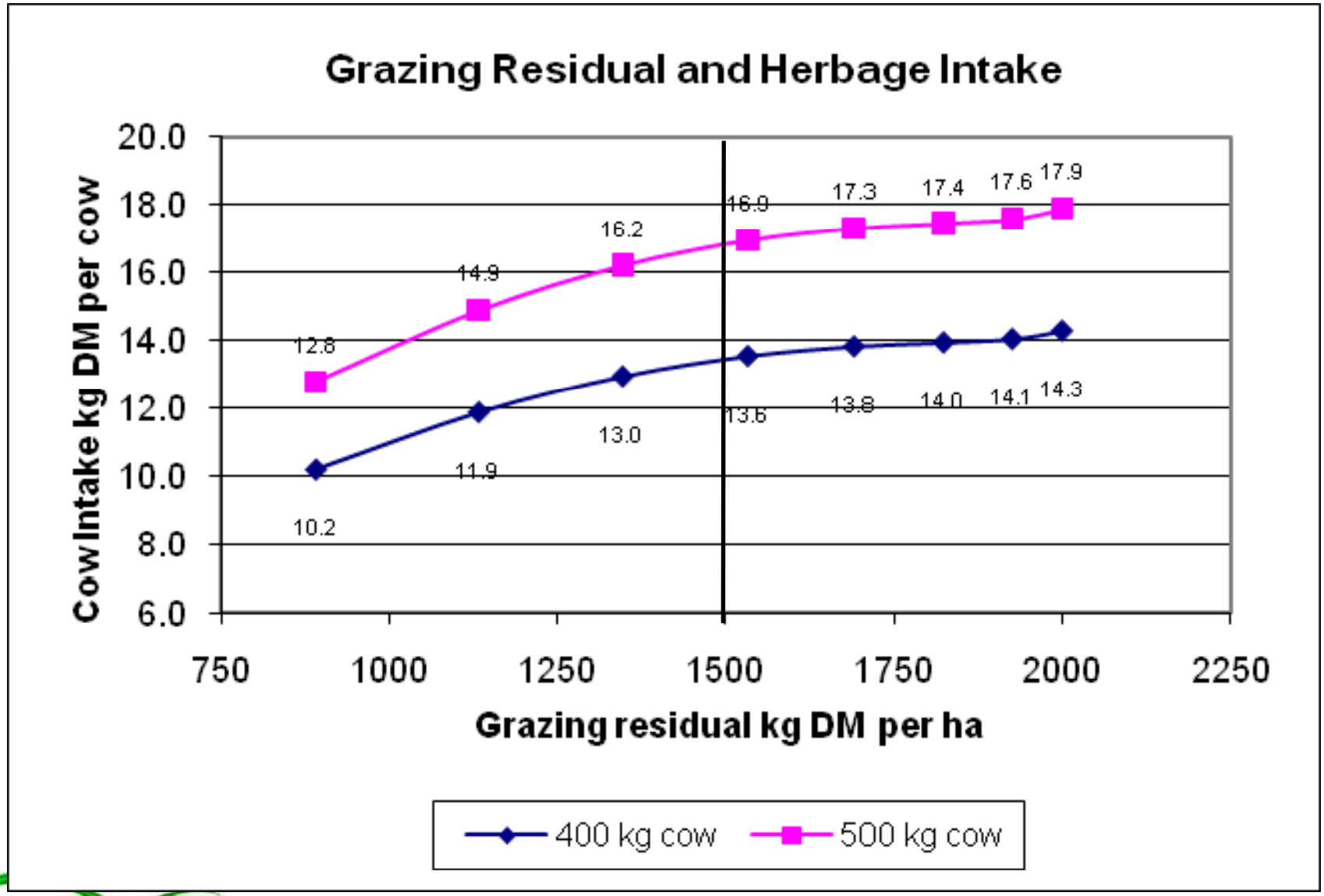

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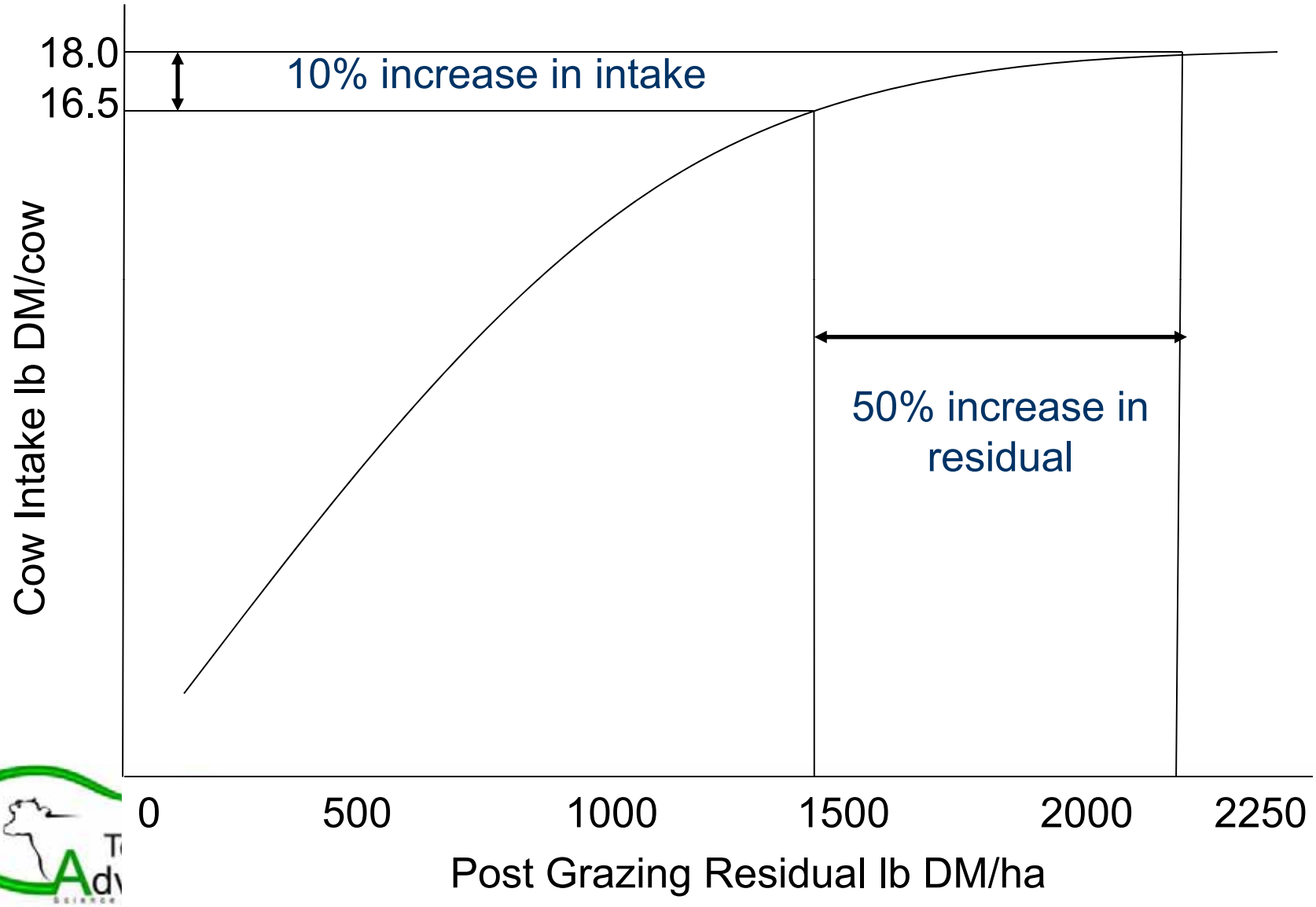
Grazing Residual and Intake



"There is no greater force than the control of stocking rate in Grassland Farming"

-C.P. McMeekan (c1950)

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J. Dairy Sci. 91:2151–2163
doi:10.3168/jds.2007-0630

Effect of Stocking Rate on Pasture Production, Milk Production, and Reproduction of Dairy Cows in Pasture-Based Systems

K. A. Macdonald, J. W. Penno,[1] J. A. S. Lancaster, and J. R. Roche[2]
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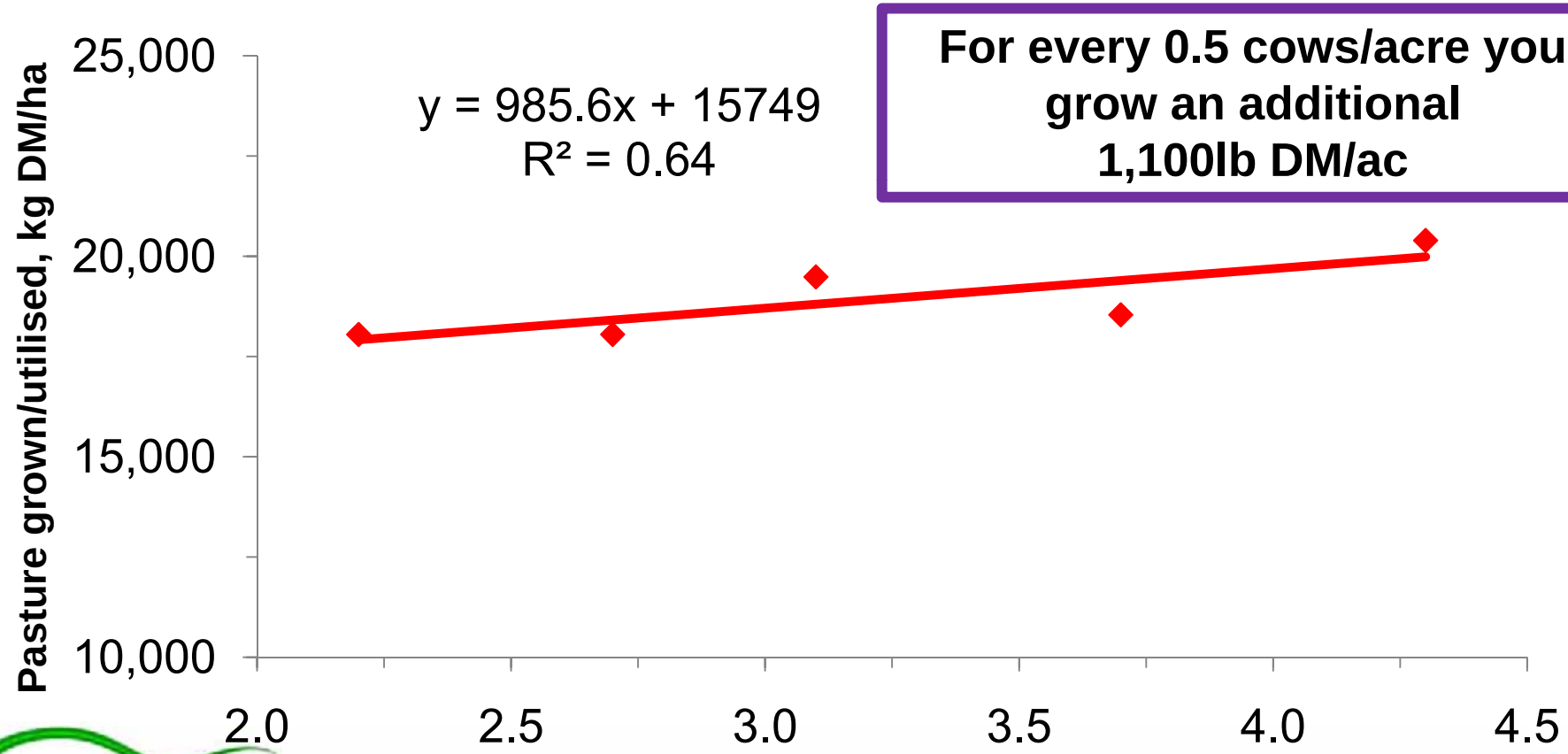

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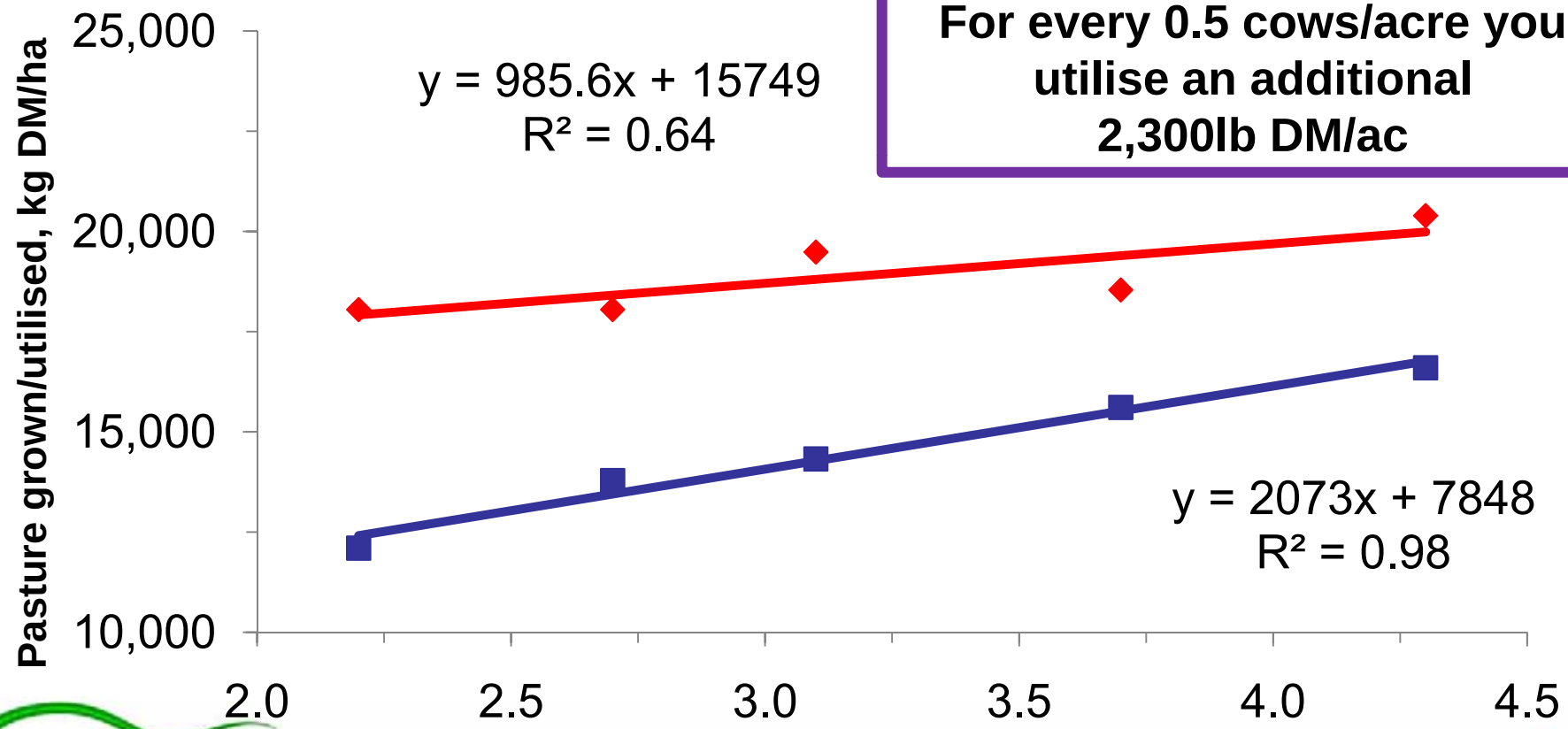
For every 0.5 cows/acre you utilise an additional 2,300lb DM/ac



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Do you know

- Your adjusted acreage
- Your milking platform acreage
  - Optimum SR = 180 lb Lwt/ton total feed (pasture +supp)
    - 6 ton DM/ac, 1100 lb cow, 1,000 lb purchased supplement/ac
    - Optimum SR = 1.1 cows/ac
- Do you know what each paddock produces/yr
  - 100% difference between your best and worst paddock

If you don't measure, you can't manage

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Managing pasture is as easy as 1, 2, 3

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Energy allocation

Animals

- Maintenance

- Production
  - milk
  - growth
  - reproduction

- Body condition score

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Energy allocation

Animals

- Maintenance
- Production
  - milk
  - growth
  - reproduction
- Body condition score

Plants

- Maintenance (respiration)
- Production
  - leaves
  - roots
  - tillers
- Storage

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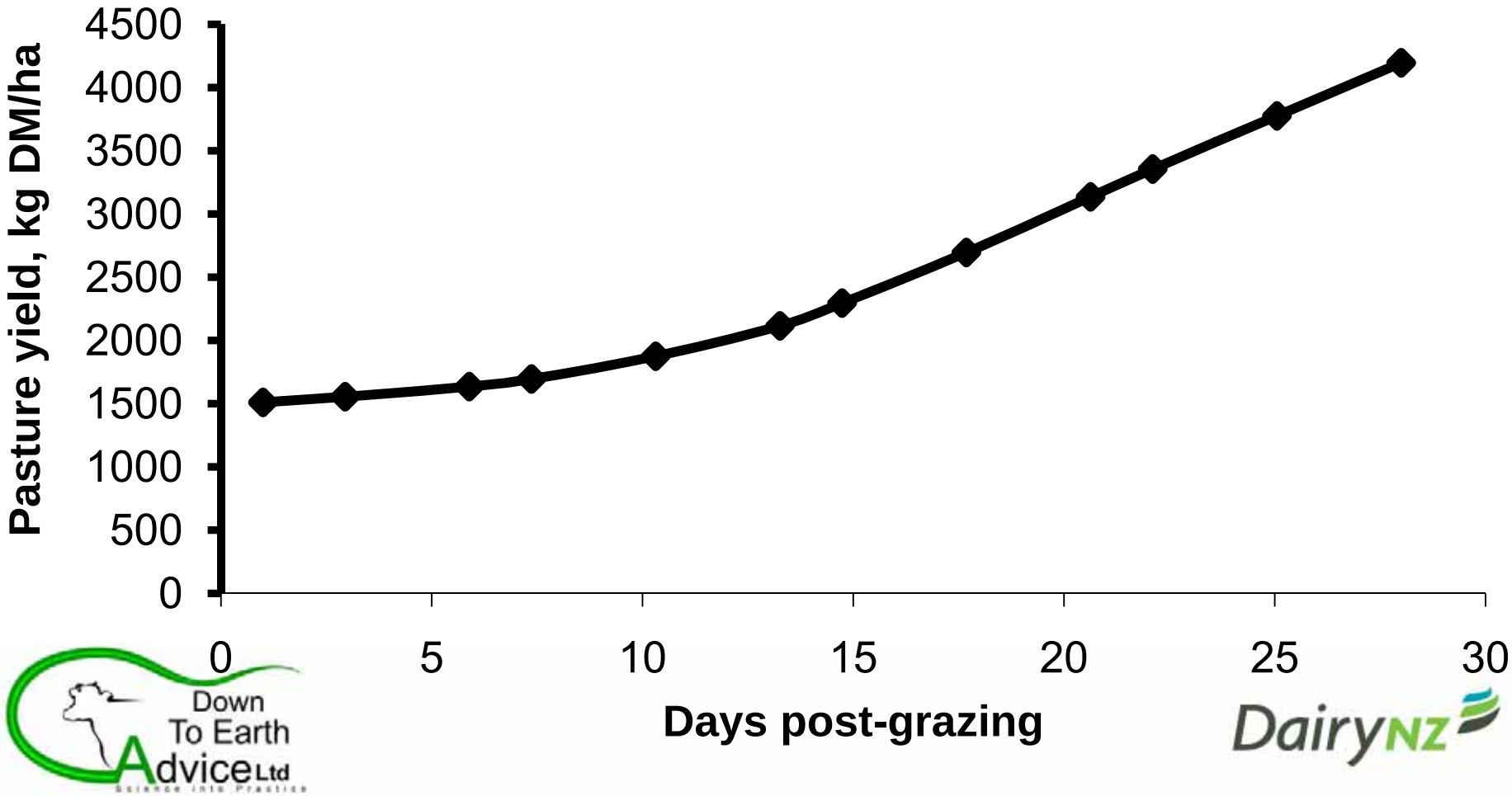
How pasture grows



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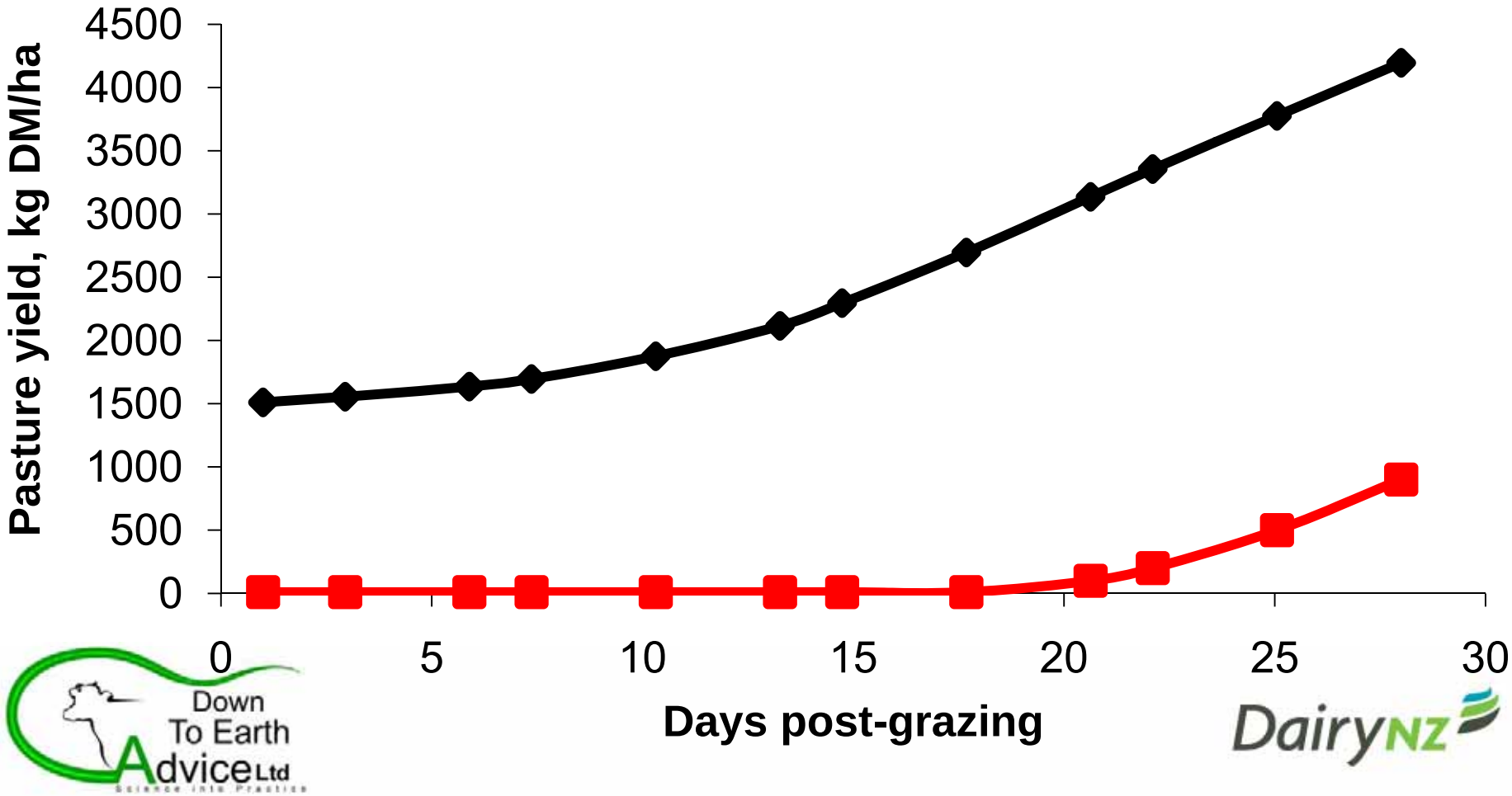
How pasture grows



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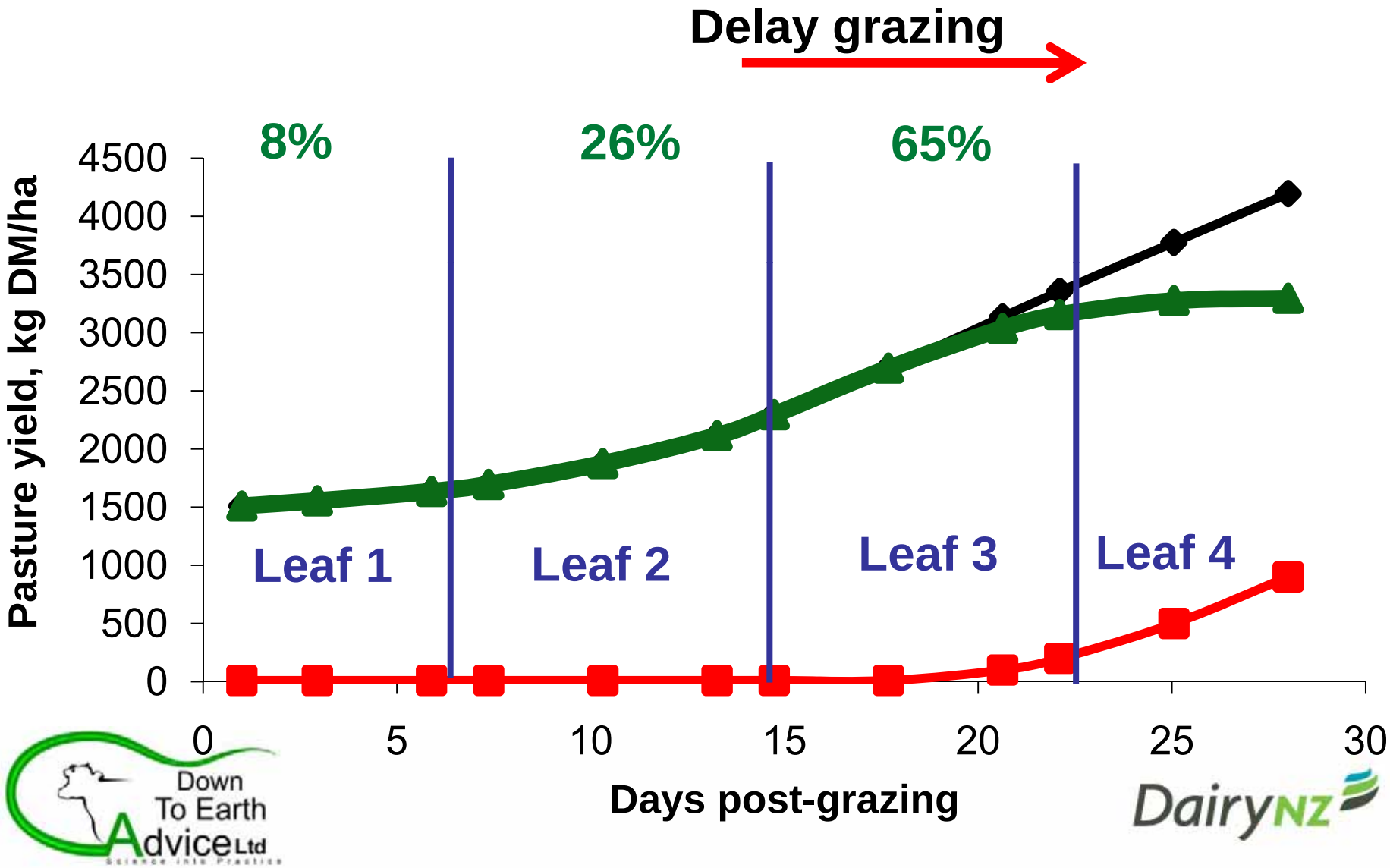
How pasture grows




Canopy closure

Canopy closure

When you can't see the ground or pasture base directly below (usually > 2,500 lb DM/ac)

If > 25% of paddock is affected:

- Poor quality pasture
- Decline in tillering
- Post-grazing residuals will increase

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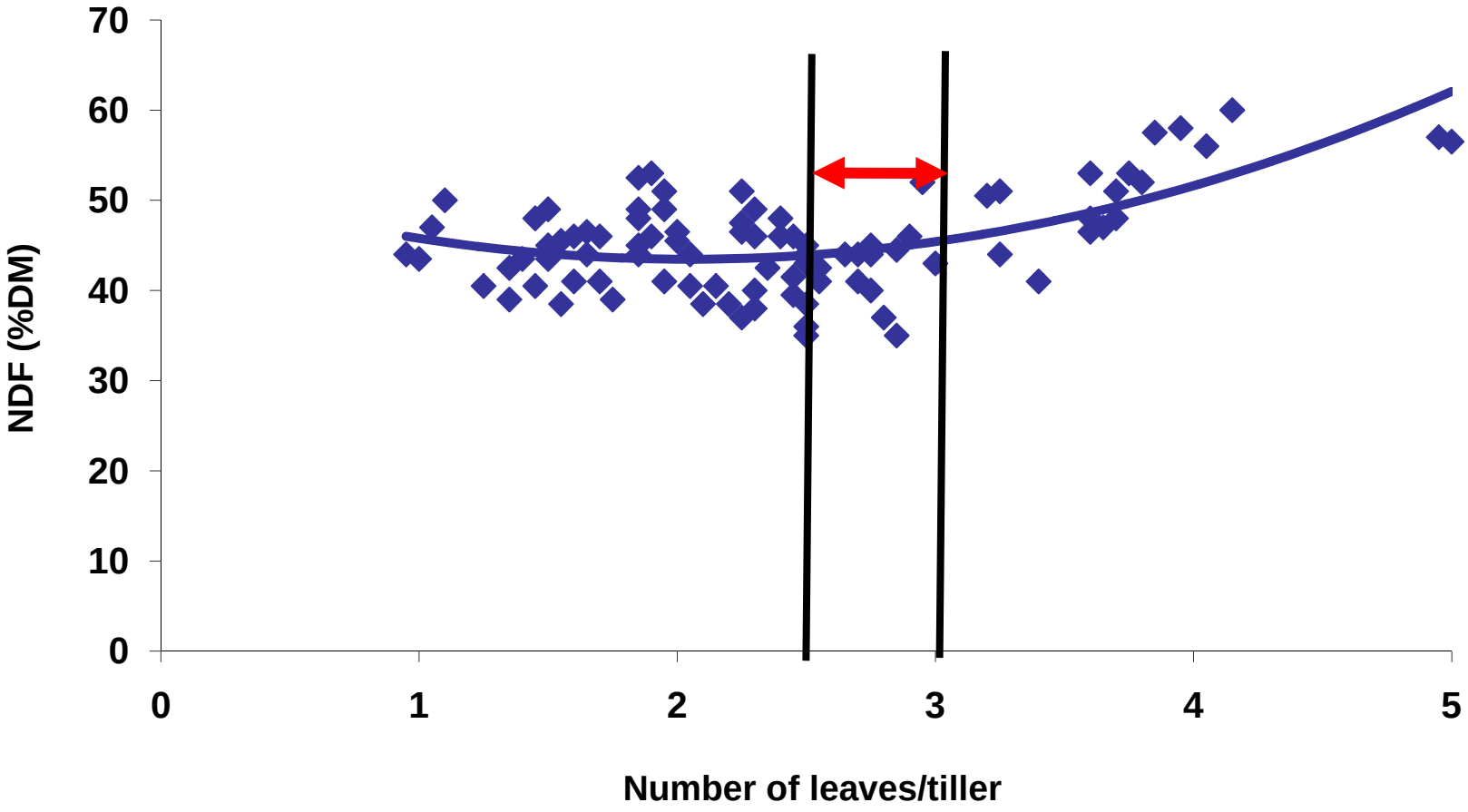
What about Quality?



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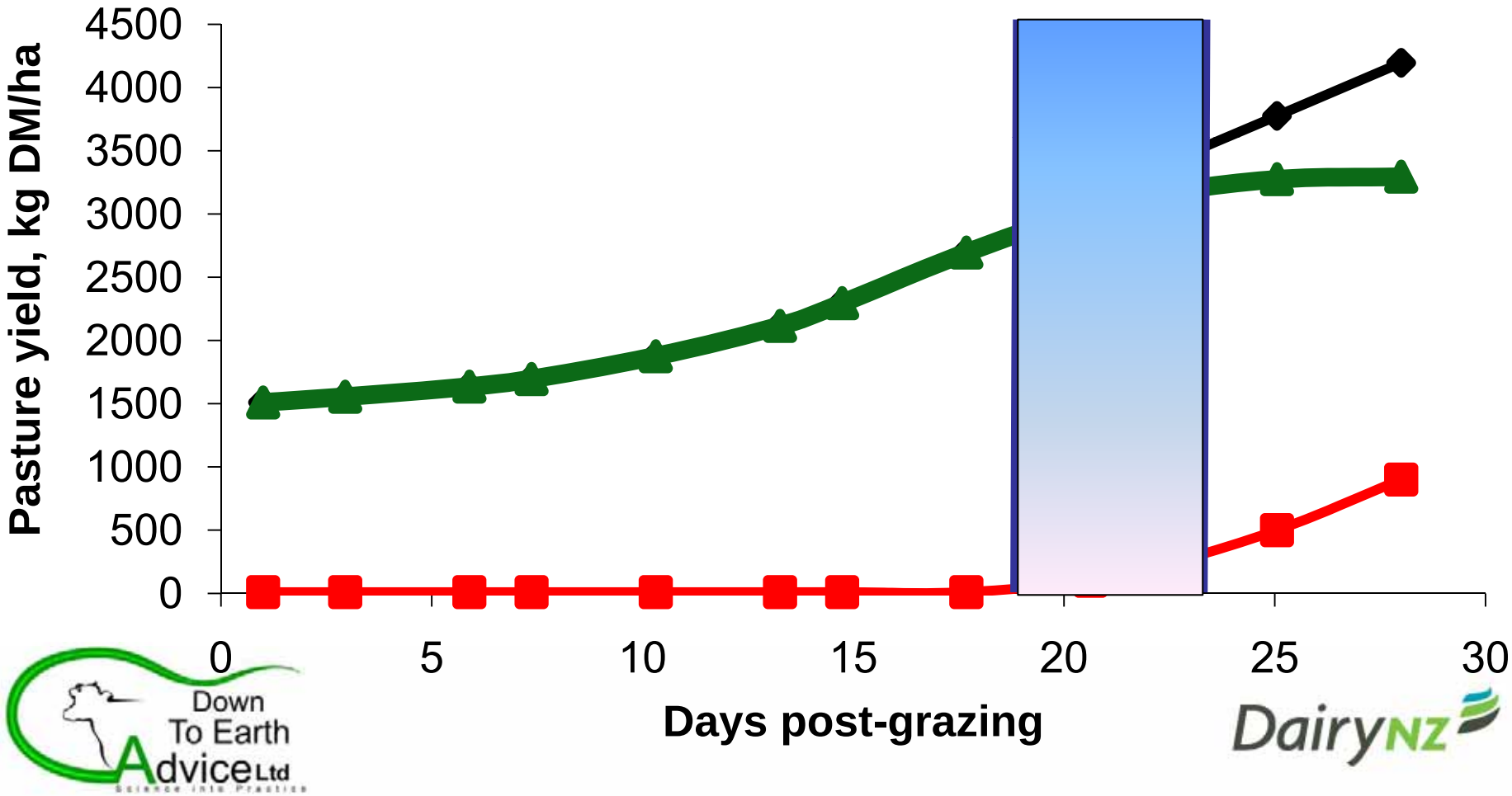
The sweet spot – maximising pasture grown and quality



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How tight should we graze?

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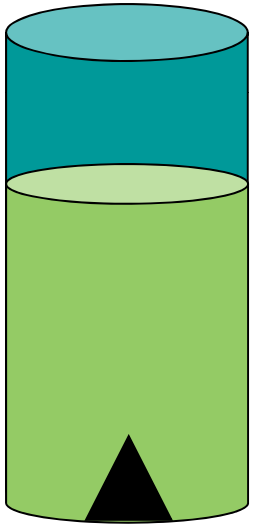
How hard to graze



1.5 inches

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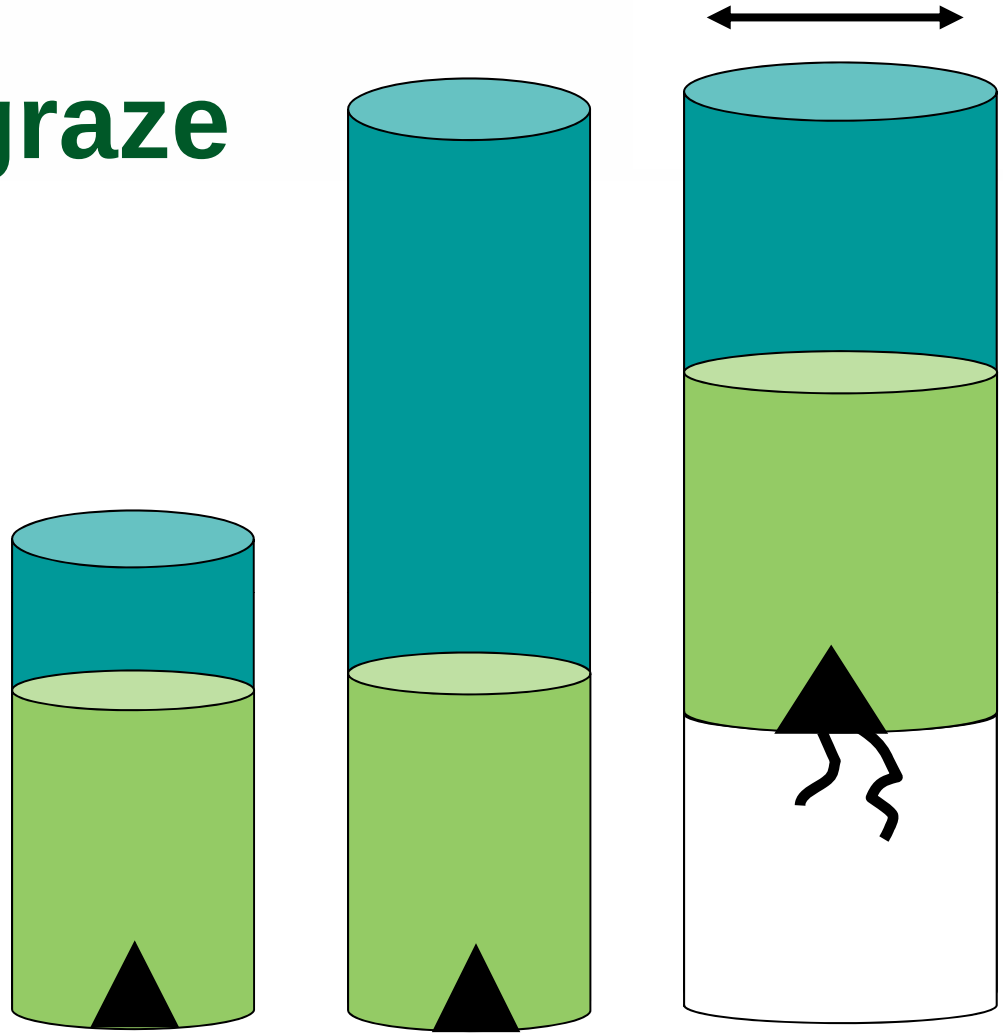
How hard to graze



1.5 inches

3 inches

3 inches
(following 2 to 3 rotations)

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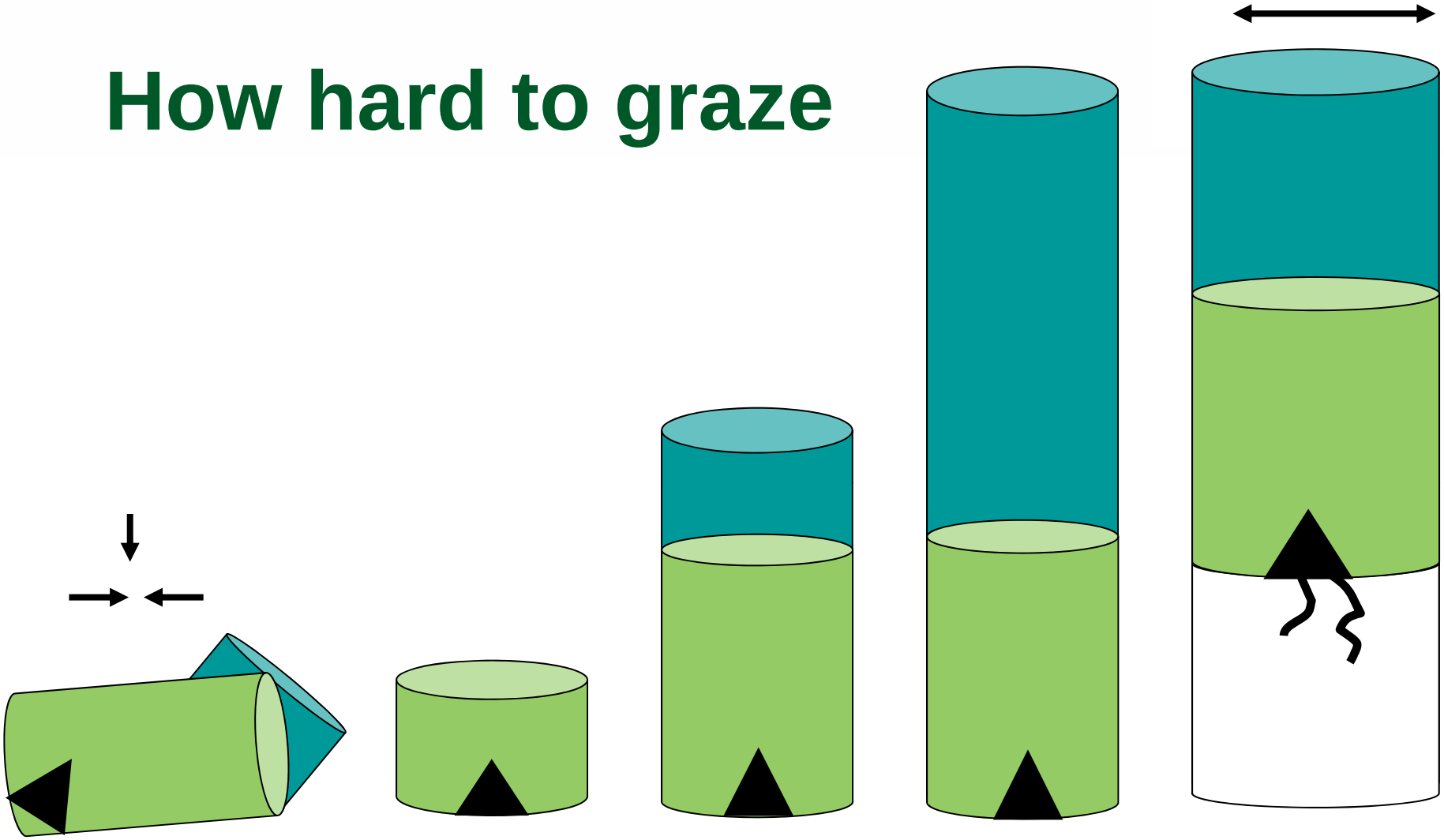
How hard to graze



0.75 inches
(following 2 to 3 rotations)

0.75 inches

1.5 inches

3 inches

3 inches
(following 2 to 3 rotations)

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Phenotypic plasticity

2 inches residual

1 inch residual

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Australian Journal of Experimental Agriculture, 2007, **47**, 825–832

The effect of grazing severity and fertiliser application during winter on herbage regrowth and quality of perennial ryegrass (*Lolium perenne* L.)

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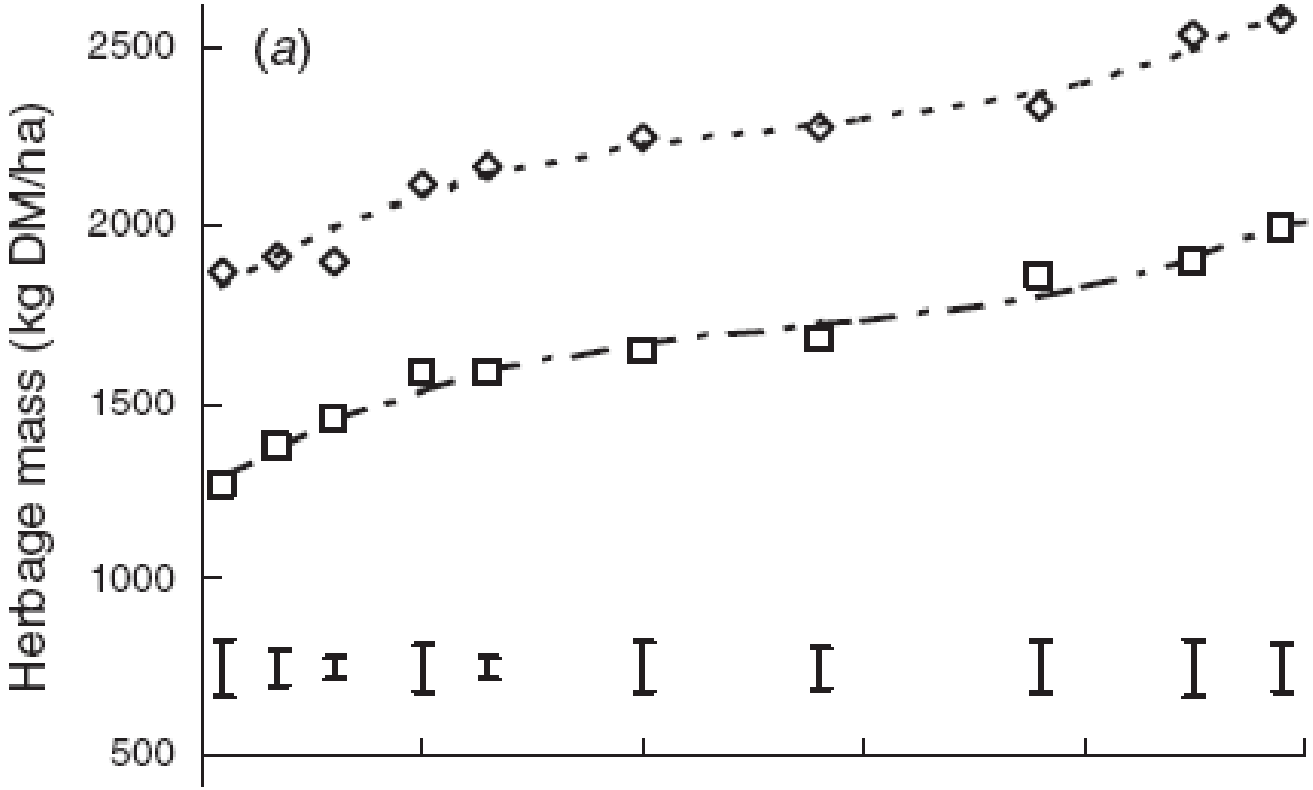

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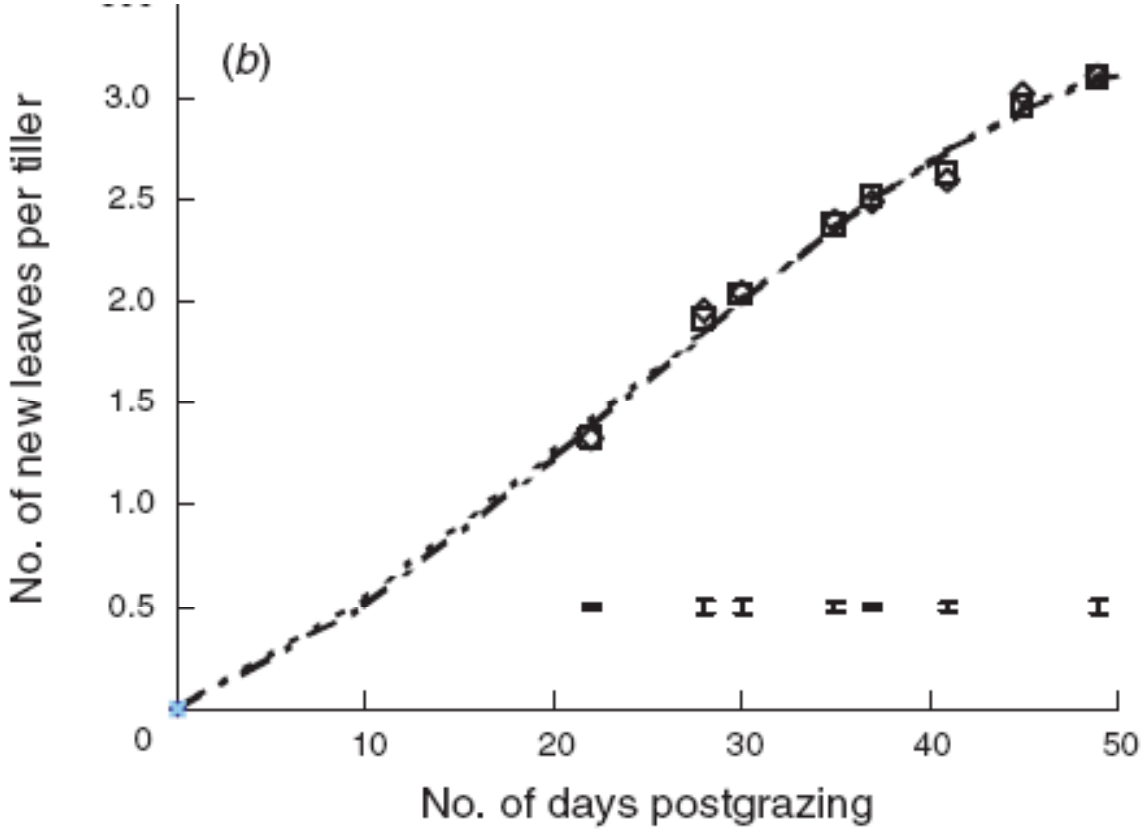

Spring Grazing Trial Ruakura 1992

	lb DM/ac			
Grazing Residual at Start of 52 day Grazing Interval	**1773**	**1425**	**1155**	**864**
Cover after 52 day grazing Interval September	3264	3030	3000	2916
Accumulated Growth Kg DM/ha/day (52 days)	**1491**	**1605**	**1845**	**2052**
Average growth rate Kg DM/ha/day	**28.7**	**30.9**	**35.5**	**39.0**

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How hard to graze pasture

- Ideal height is ~ 1.5 to 2.0 inches

(equates to ~ 7 – 8 clicks on rising platemeter)

- Irrespective of (cool season) pasture species

NEED to get it right early!

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What about the cows

J. Dairy Sci. 91:4307–4311
doi:10.3168/jds.2008-1188

Short Communication: **Effect of Postgrazing Residual Pasture Height on Milk Production**

J. M. Lee,* D. J. Donaghy,† and J. R. Roche*†[1]
*DairyNZ Ltd., Private Bag 3221, Hamilton 3240, New Zealand
†Tasmanian Institute of Agricultural Research, University of Tasmania, PO Box 3523, Burnie, Tasmania 7320, Australia

- Set pastures up at 1.5, 2.0 and 2.5 inches
- Cows then grazed to previous height
- Milk yield not different at 1.5 or 2.0 inches
- Milk yield reduced at 2.5 inches

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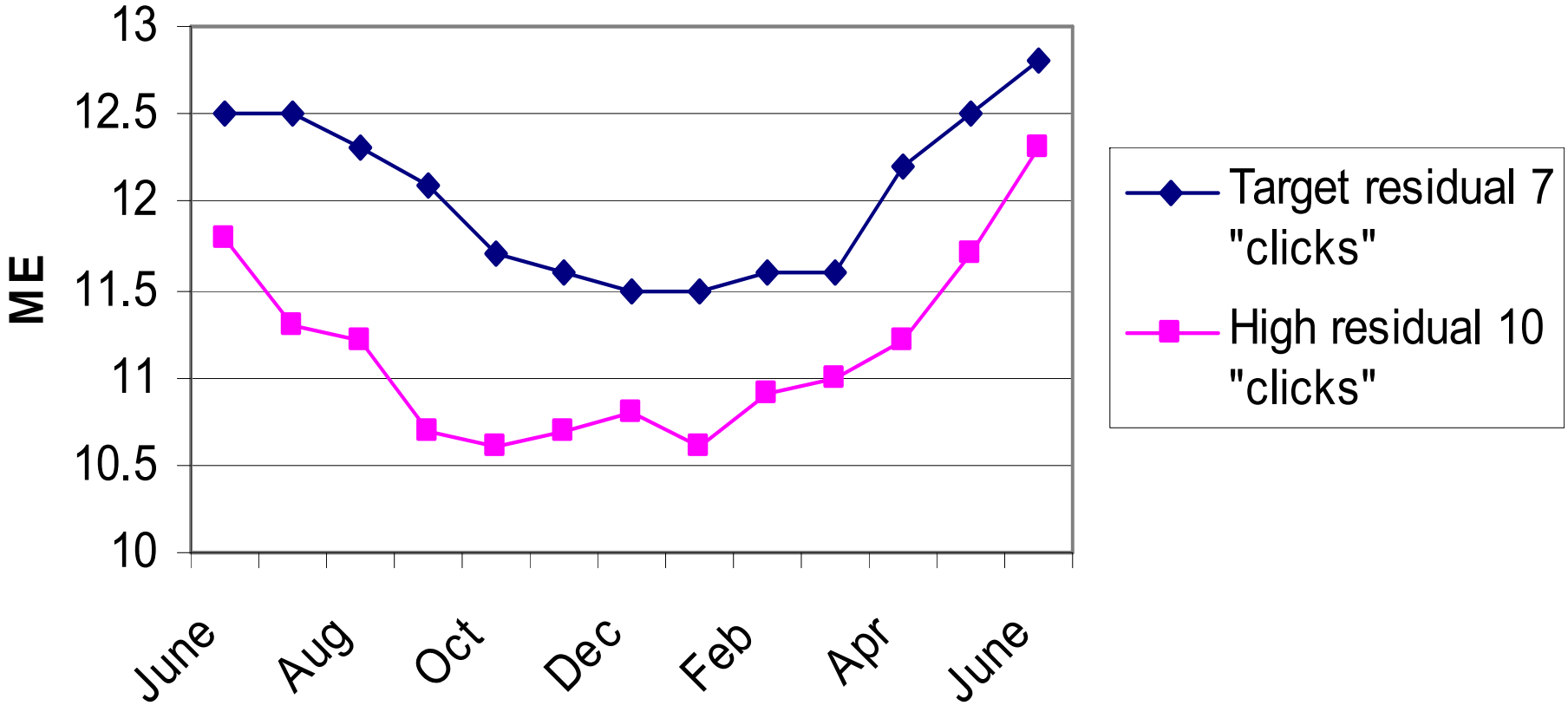
Impact of grazing Residues on Pasture ME

6 Canterbury Monitor Dairy farms 2003 season



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To summarise grazing management

- Graze when more than 2 leaves on >75% tillers
- Graze prior to canopy closure
  - Exception during late fall with dry cows
- Graze to 1.5 inches
  - Must begin as you intend to continue

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Tools to enable efficient management

- Anything that allows you to estimate pre-grazing mass, leaf stage, and post-grazing **height**
  - Plate meter, C-Dax, “eye-ometer”
- Rotation planner/wedge

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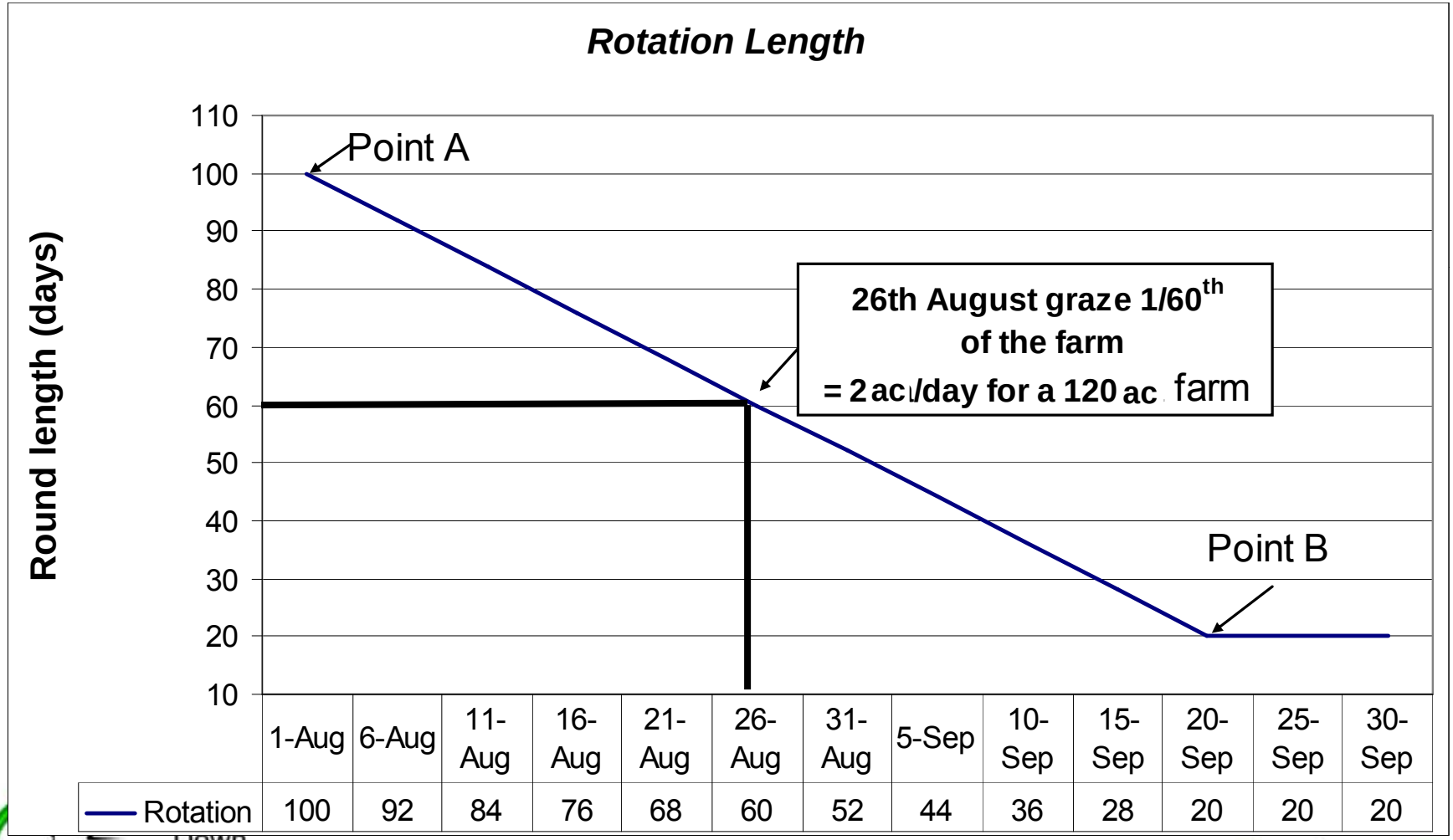
Spring Rotation Planner



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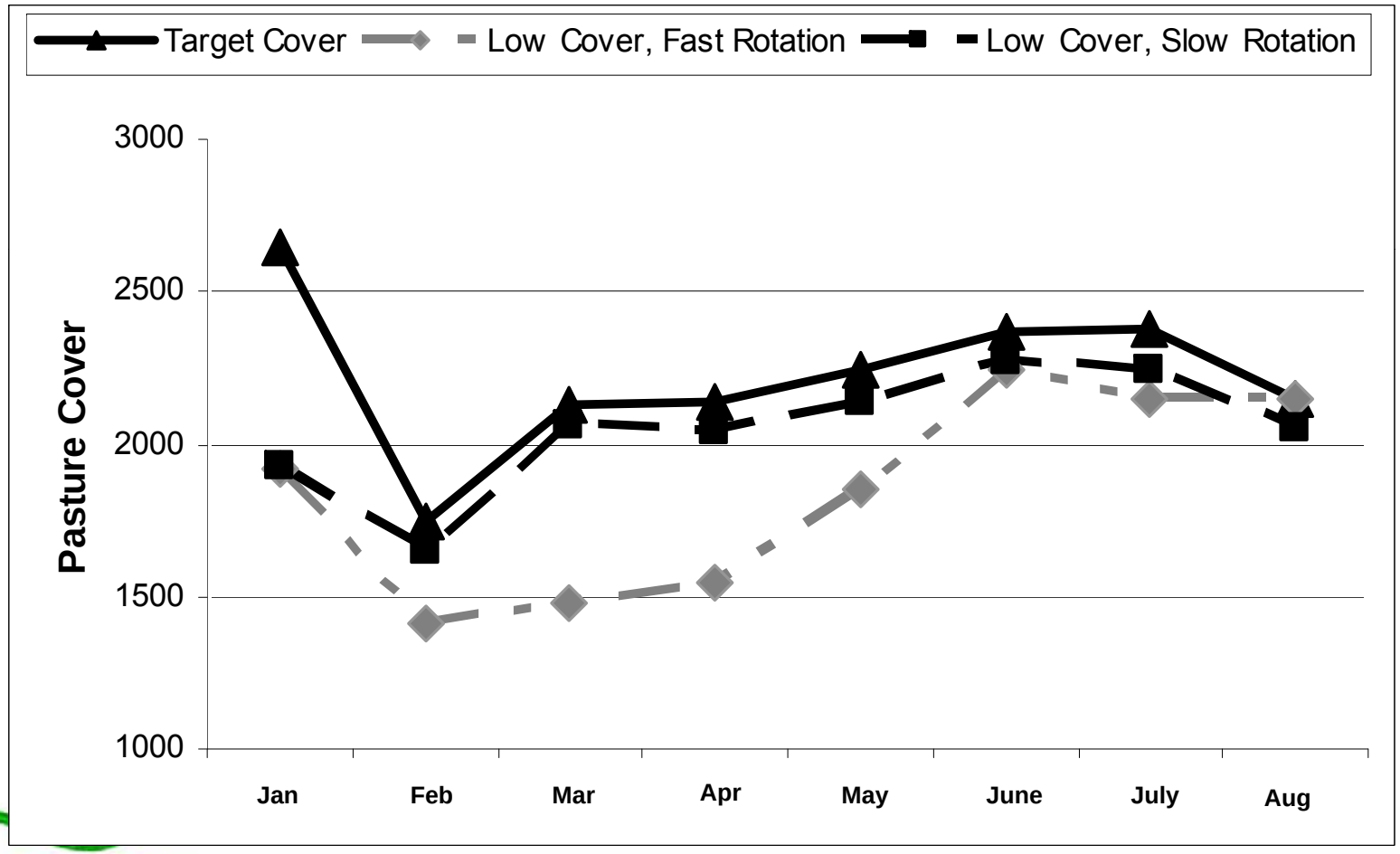
Rotation Length After Calving



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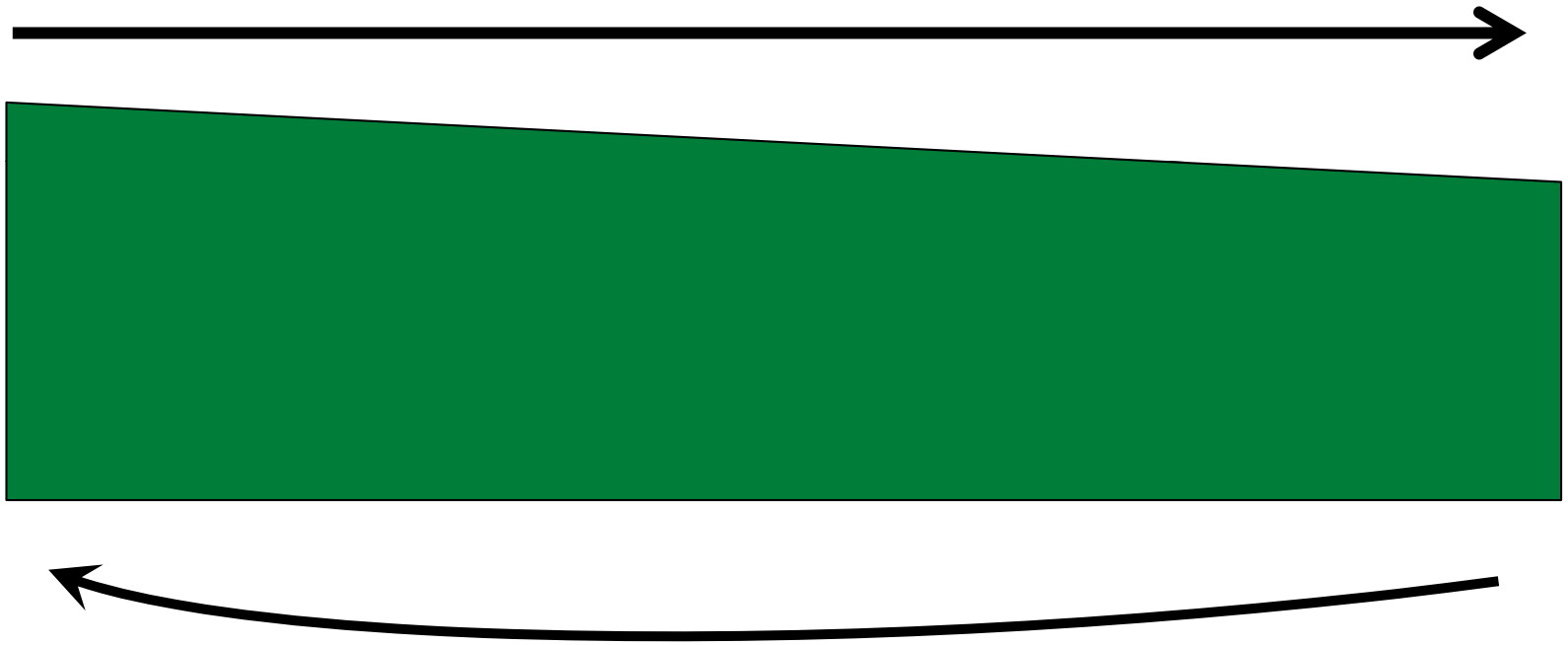
It requires flexibility and adaption



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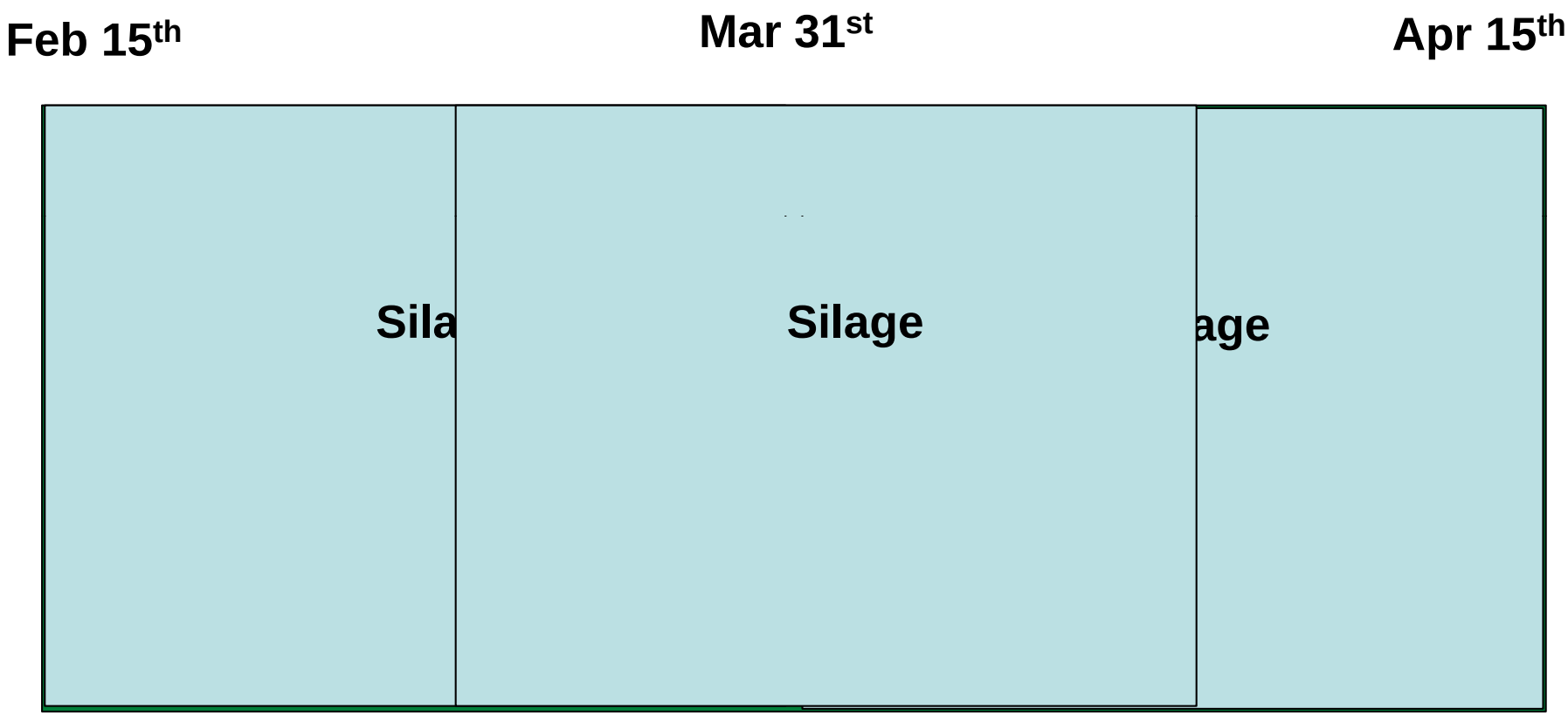

Tools

- Plate meter, C-Dax, etc.
- Rotation planning, grazing wedges, etc.
- Your eyes and your brain

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Phew. Thank God Willy John’s not here to graze