

Grazing Management...Why Bother?

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Or.....
How not to fall for grazing
management nonsense.

Grazing management

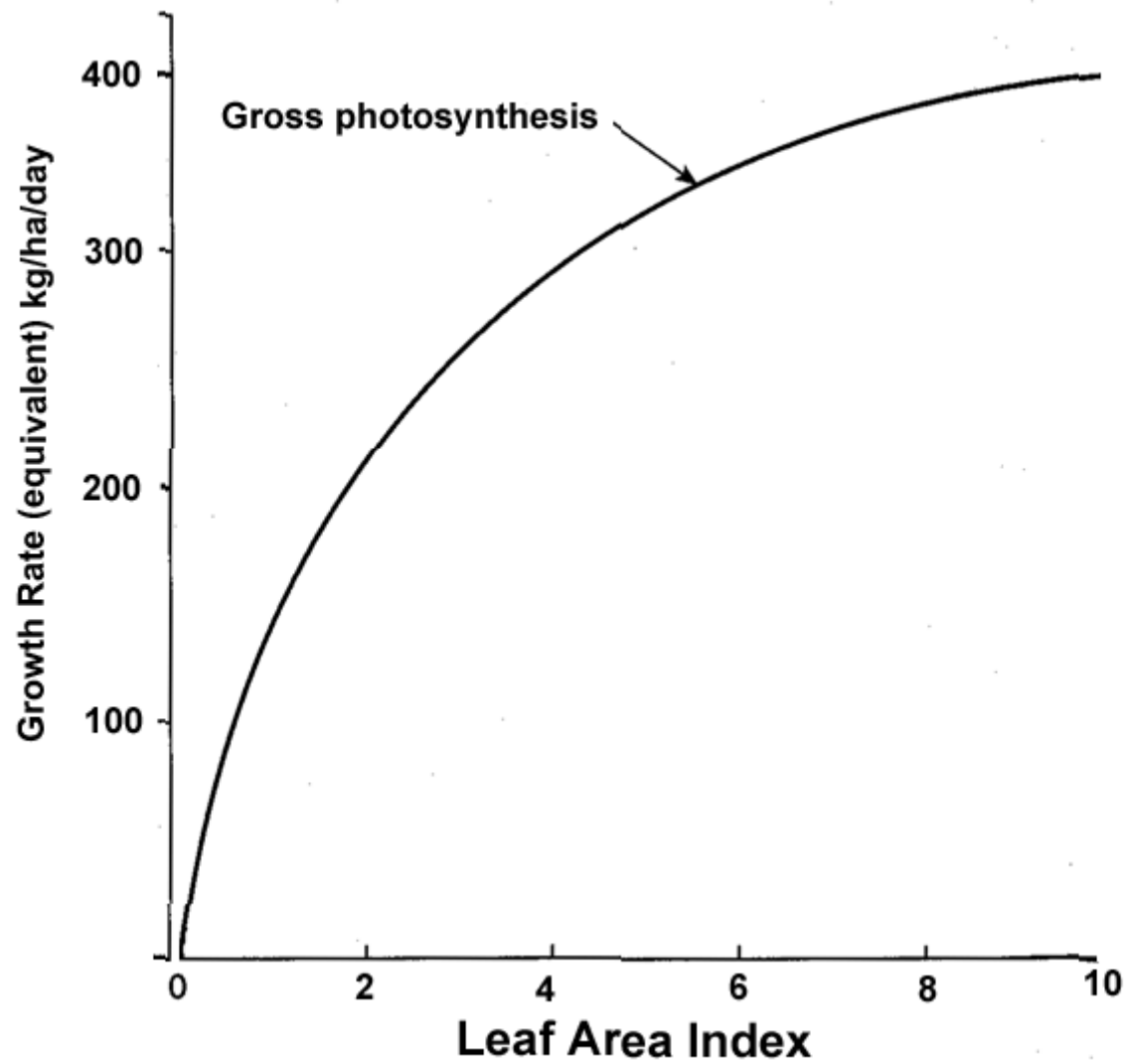
- Grazing management – affects where and when and how many stock graze.
- Much talked about but evidence should be primary
- Today's approach – Inoculate against nonsense
- Myth 1 – grazing management regimes can substantially increase pasture growth

First....some basics

- How pasture grows and responds to grazing
- Pasture abundance....feed on offer to us, Leaf Area Index when studying photosynthesis
- Leaf area Index – area of leaf per m² ground area

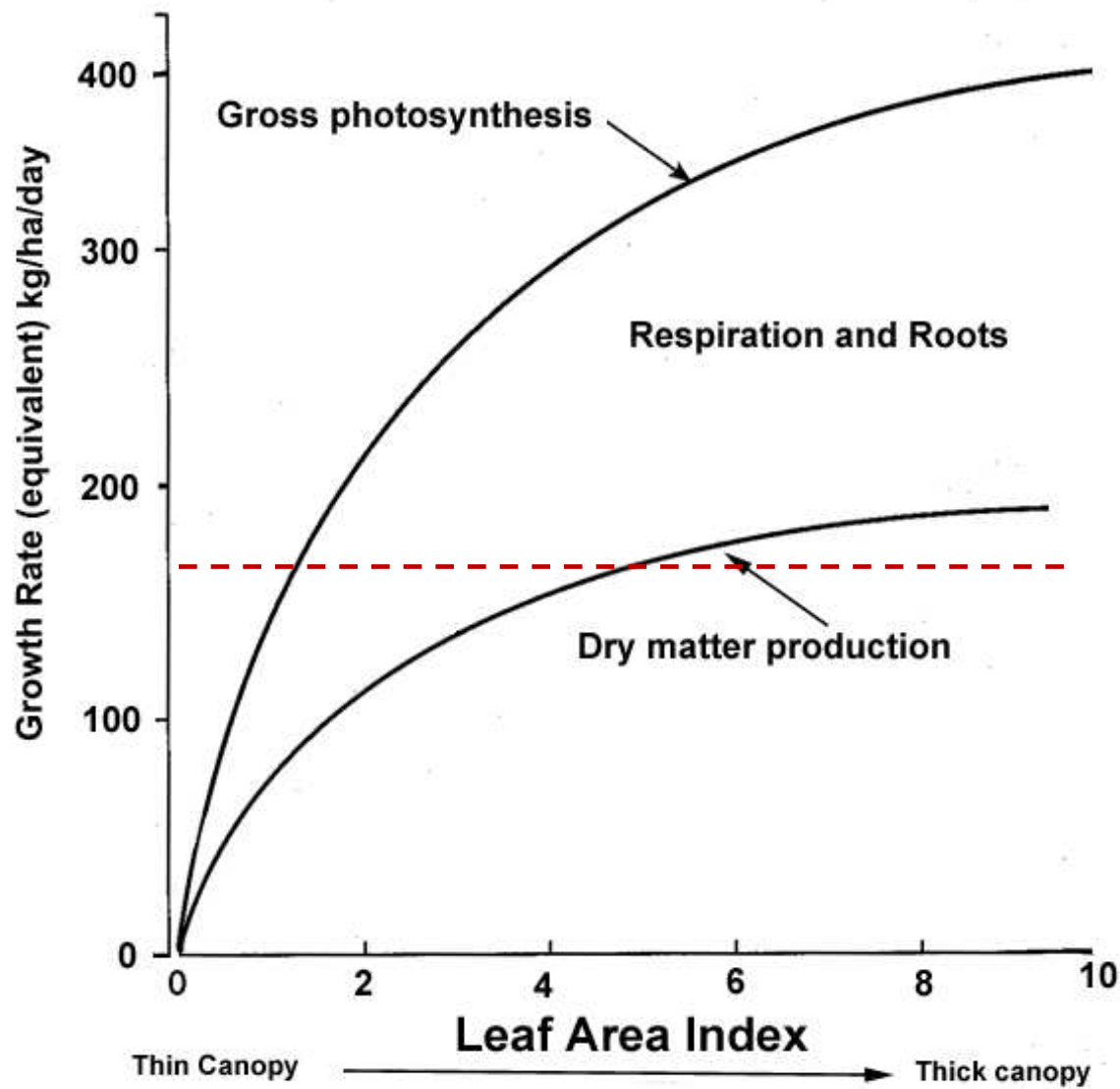
A note before we start

- The following data is based on pure perennial ryegrass pastures grazed (stocking rate varied) to achieve variation in Leaf Area Index
- photosynthesis, respiration, tissue death, root fraction, growth and intake all measured/calculated
- Then used data to model over a range of Leaf Area Index



The greater the leaf area index, the more photosynthesis.

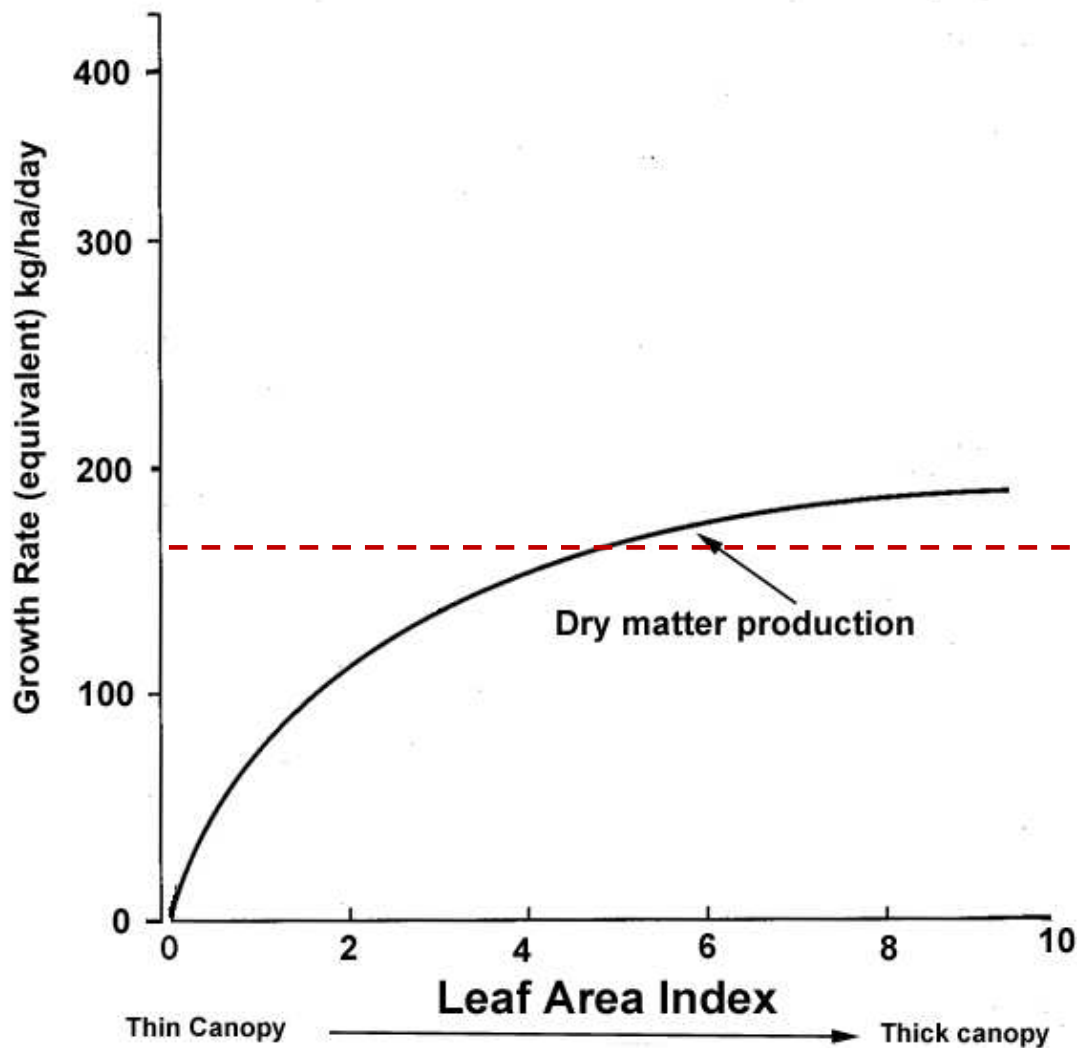




Actual dry matter in paddock depends on how much lost in respiration and partitioned to roots

90% max



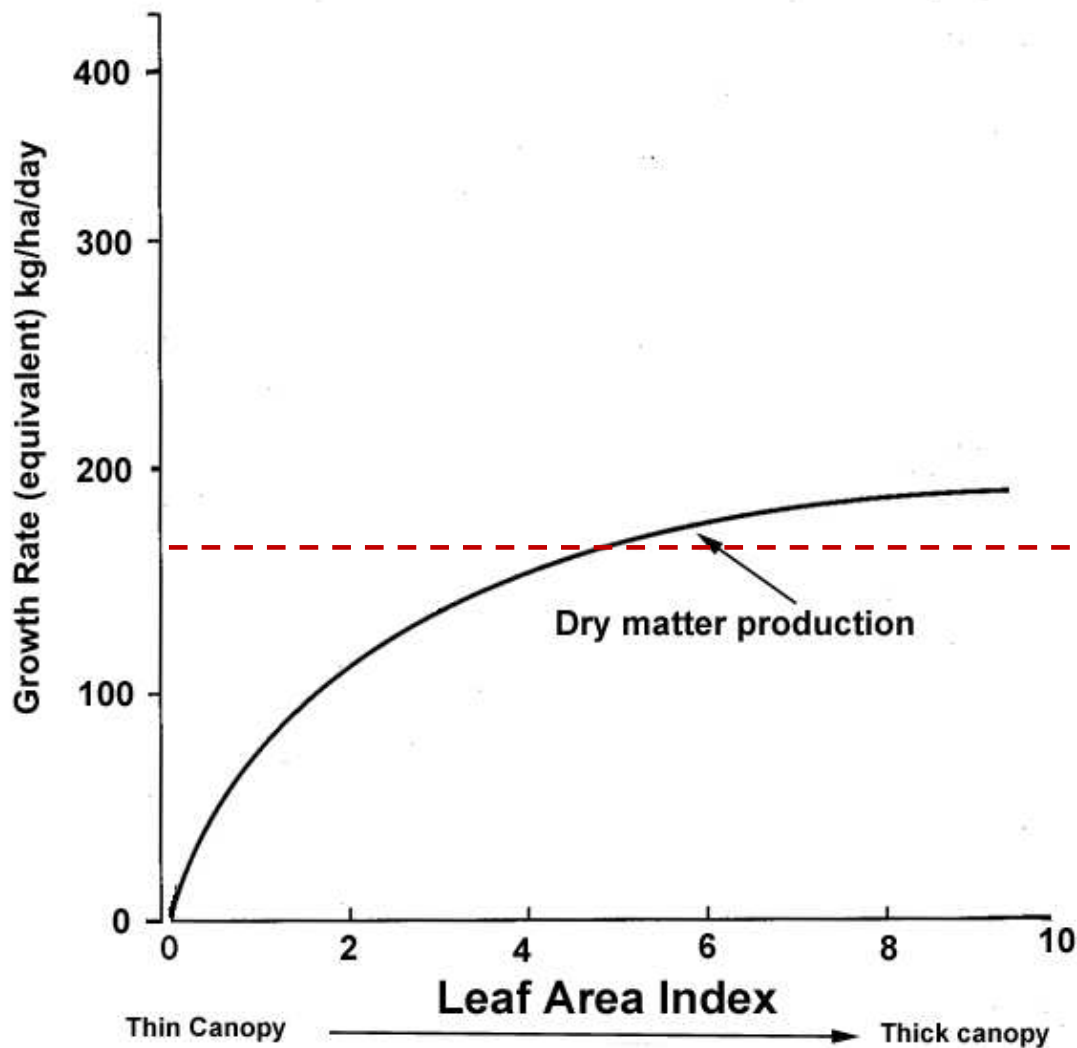


-Growth is maximised at a fairly high Leaf Area Index: 90% max at > 5, in this case
-Maintaining low LAI limits growth...autumn

90% max



Feed intake to allow these
levels of growth?

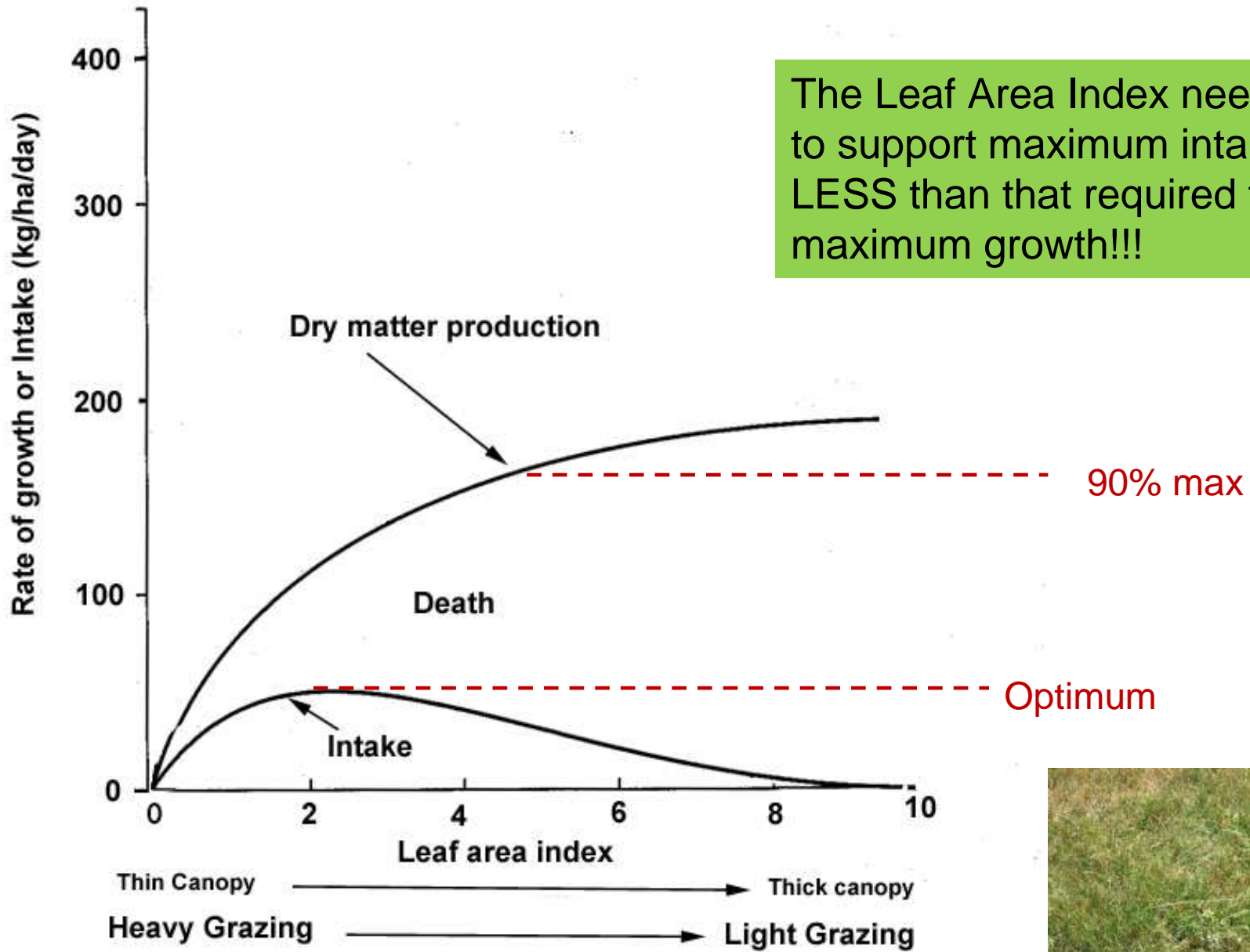


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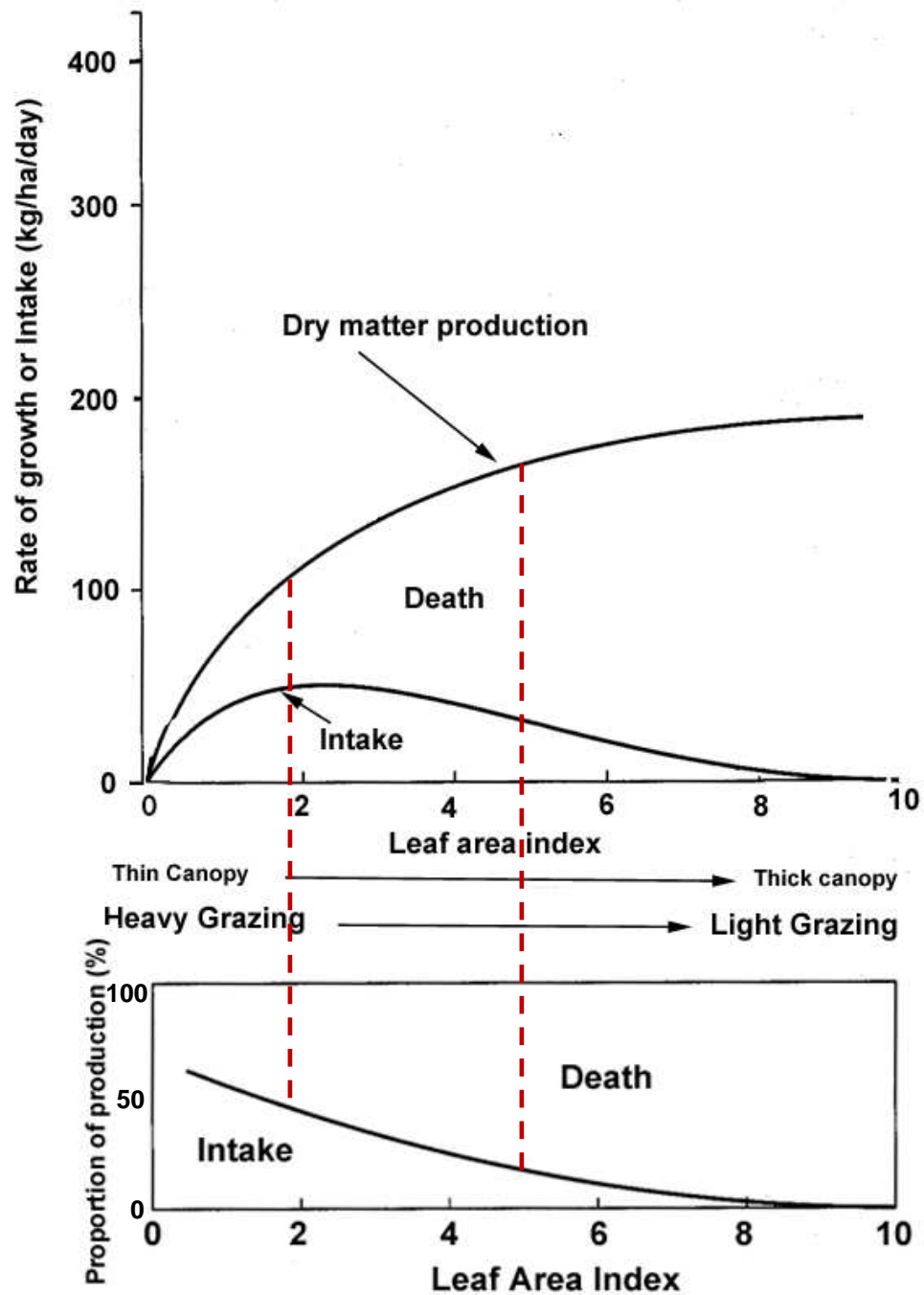
90% max



The Leaf Area Index needed to support maximum intake is LESS than that required for maximum growth!!!



WHY?



Why? – Because if utilisation isn't high enough then a large proportion of pasture mass is lost to death



But there's more...

- Using the same model – effects of spelling times and grazing times did not affect the growth-LAI relationship (to any great degree)
- Which means rotational grazing *is not a strategy that will greatly increase growth*
- (except where it influences species composition....more on this later)

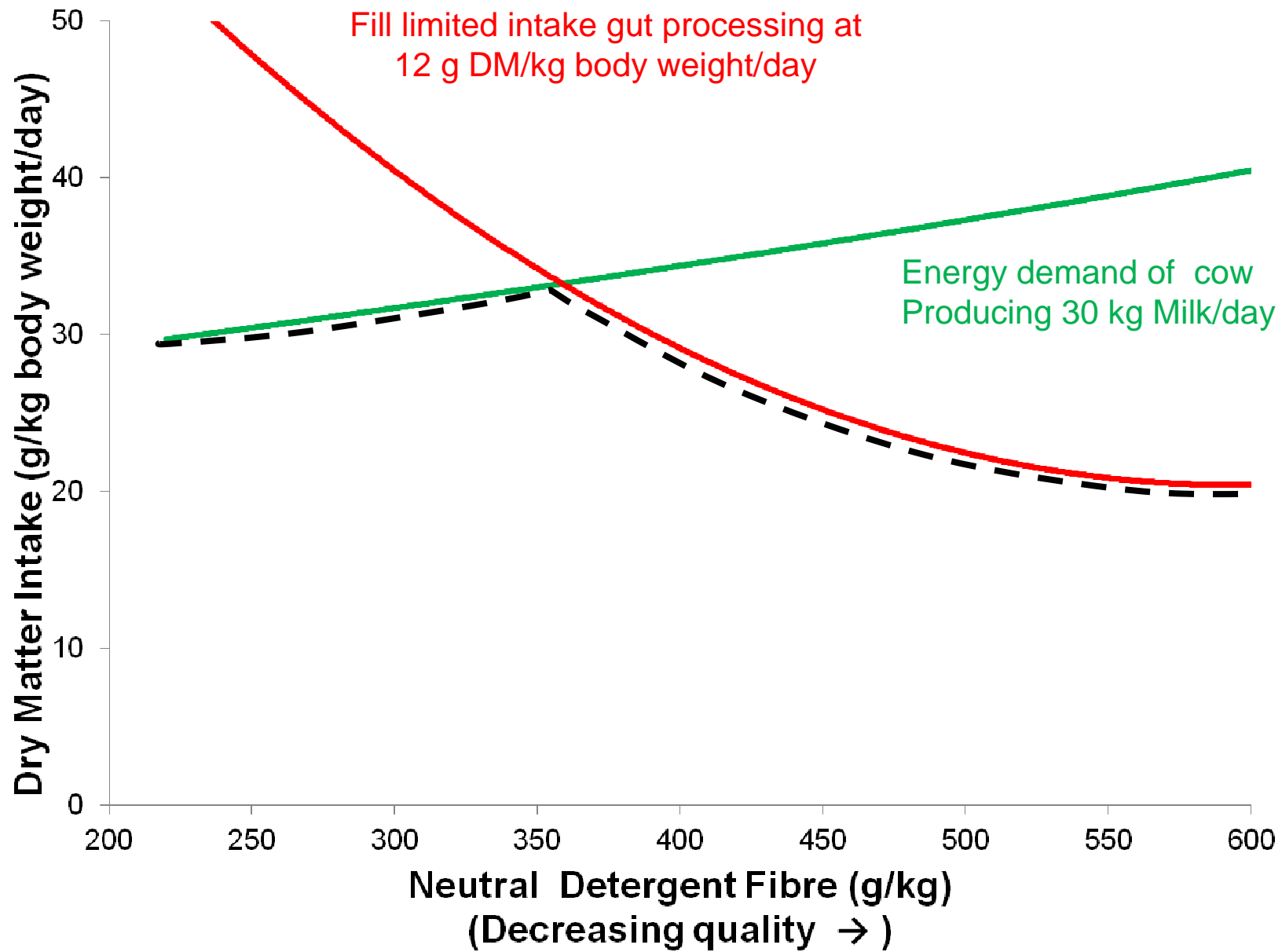
Take Home Message(s)

- Nonsense: “this grazing system increases growth”
- Answer: probably not independent of LAI/Intake relationship
- Therefore: set up paddock to maximise growth (or near maximise) but ensure it does not achieve maximum growth by utilising it.
- **There is no point to growing feed for the sake of it.**

Grazing systems and long rests

- Grazing systems and long rests from an animal perspective
- Reduced selection – negative impacts of undesirable species
- Intake and gut fill....an ever-present limitation



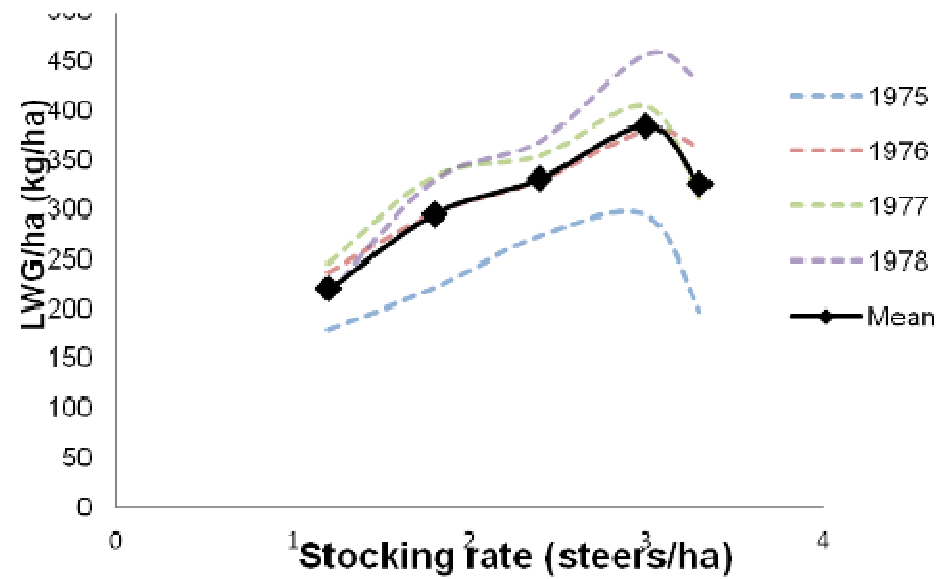
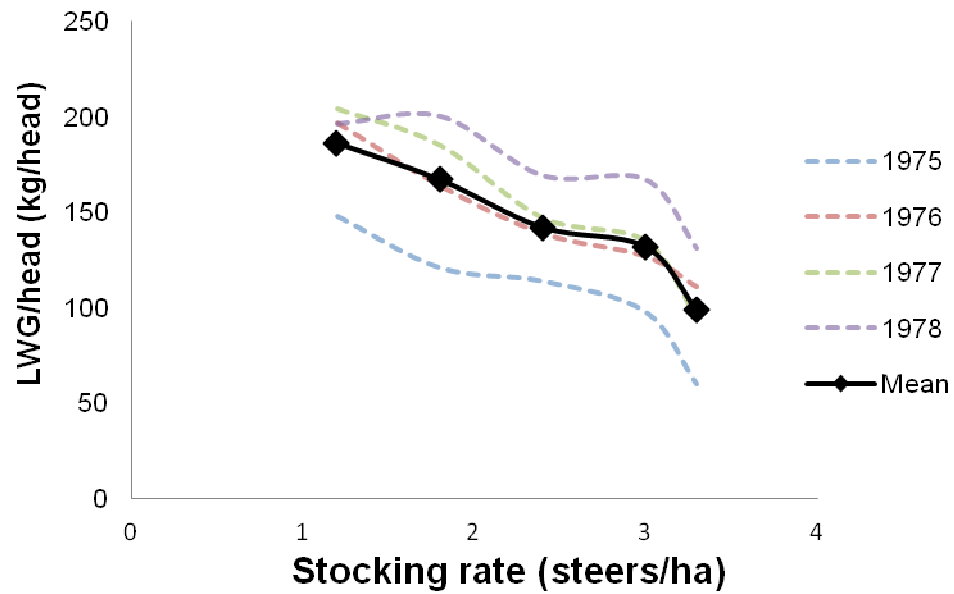


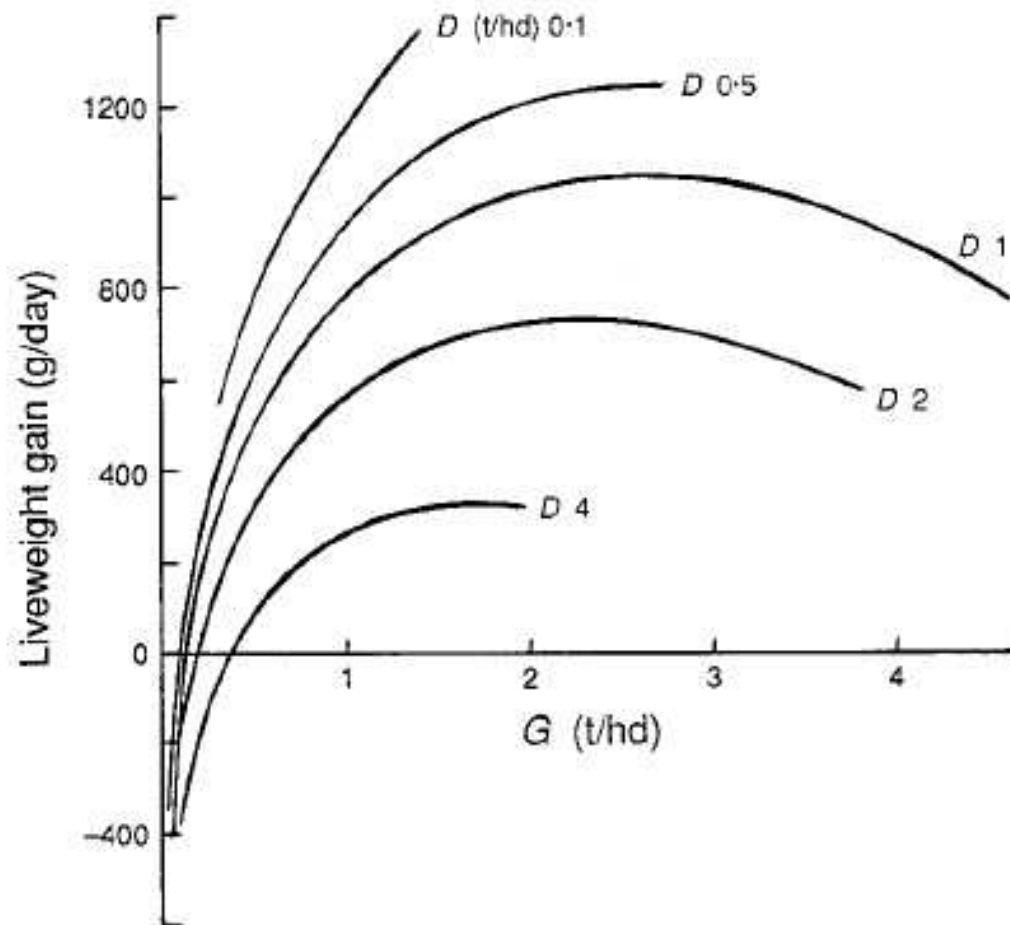
Long rests.....

- Nonsense: long rests increase utilisation of feed and increase production
- Answer: Long rests and short intensive periods of utilisation do not necessarily benefit animal production
- The higher the fibre content - the lower the rate of intake – we all know this
- Animal production system.....depends

A further note on long rests

- Response of growing animals to green feed available – depends on proportion of dead feed.
- Study by Bird, Watson and Cayley – Hamilton





The response to green feed available over spring-summer depended on how much dead dry matter was also available.

So...its not just about green feed available

Fig. 4. Effect of green pasture dry matter (G , t/head) and dead pasture (D , t/head) pasture on liveweight gain of steers in spring-summer (P7-12).

Grazing management....why?

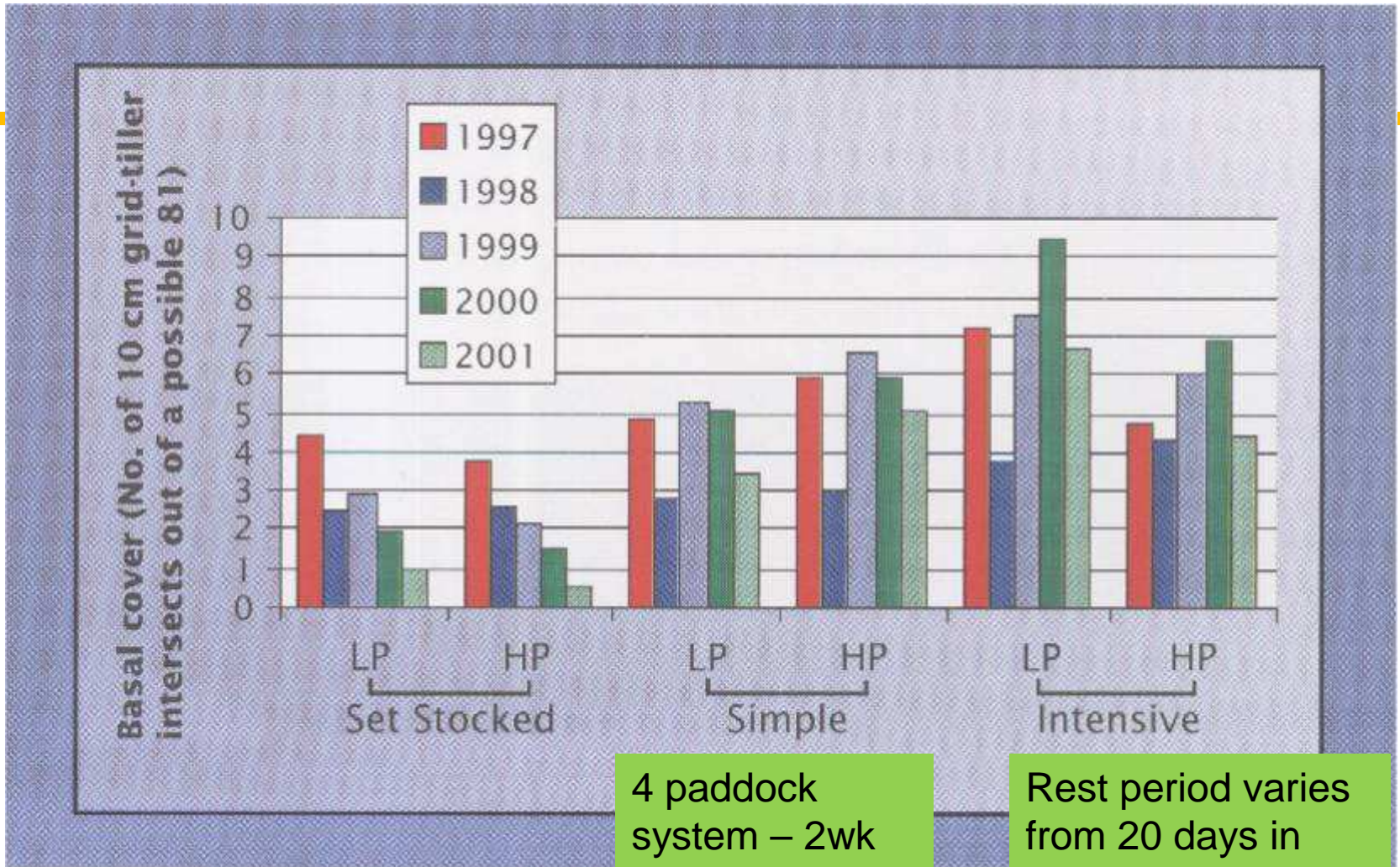
- Third myth (conservative) – grazing management has no affect on overall production.
- Longer terms studies that deal with production and cover a range of pasture species
- Not supported by (most) of the data

Generalisations

- Economics of pasture sowing rely of persistence of perennials.
- Longer spells favour perennial species – true for phalaris, true for lucerne
- Annual species favoured by hard grazing and maintenance of lower feed availability

Three case studies

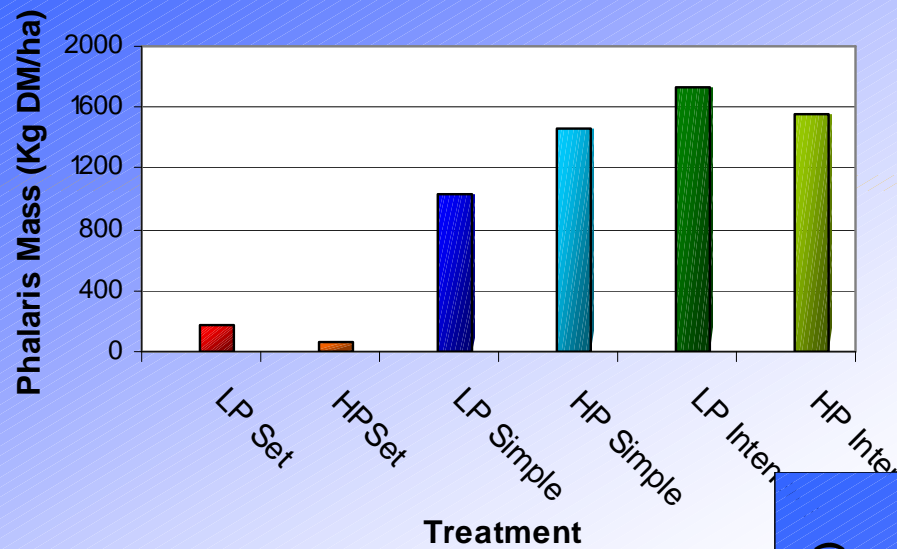
- Broadford – phalaris (Siroso) 2 levels of P, 3 grazing managements
- Canberra – Phalaris – stocking rate by grazing management
- Canberra – Lucerne – a range of spelling times



4 paddock system – 2wk on 6 wk off

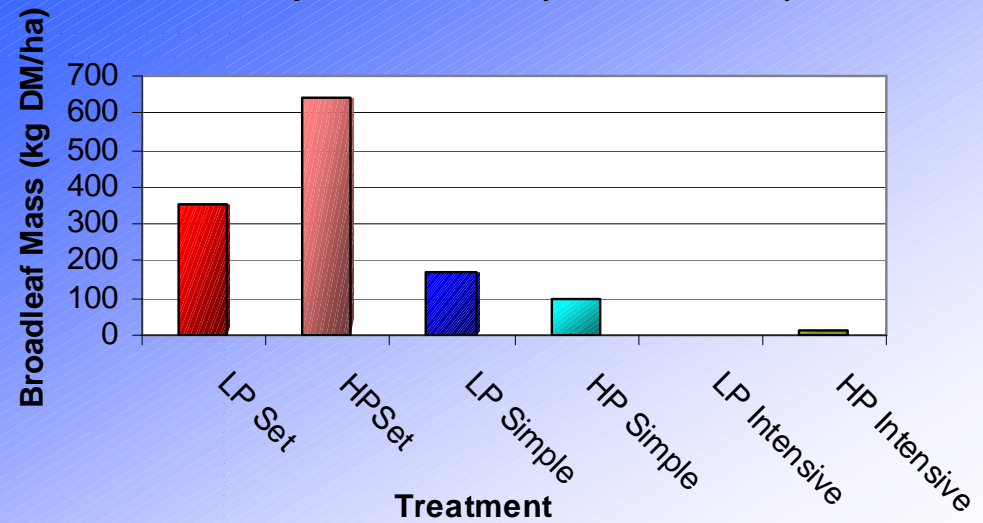
Rest period varies from 20 days in spring to 70 days in summer.

Phalaris Mass (October, 2001)

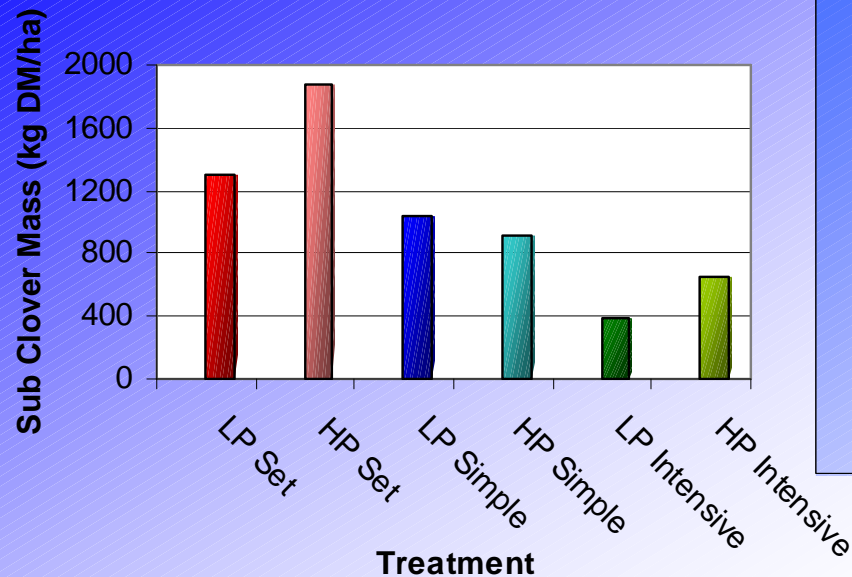


- Phalaris mass is highest in intensive rotation plots
- Sub clover and capeweed are highest in set stocked plots.

Capeweed Mass (October, 2001)



Sub Clover Mass (October, 2001)



Broadford

- Warning – not all phalaris cultivars behave the same...plus location influence
- Did the increases in stocking rate and feed come from impact of feed directly or from more phalaris (.....in winter)?
- Long rotation....best result but sub clover?

Canberra - Phalaris

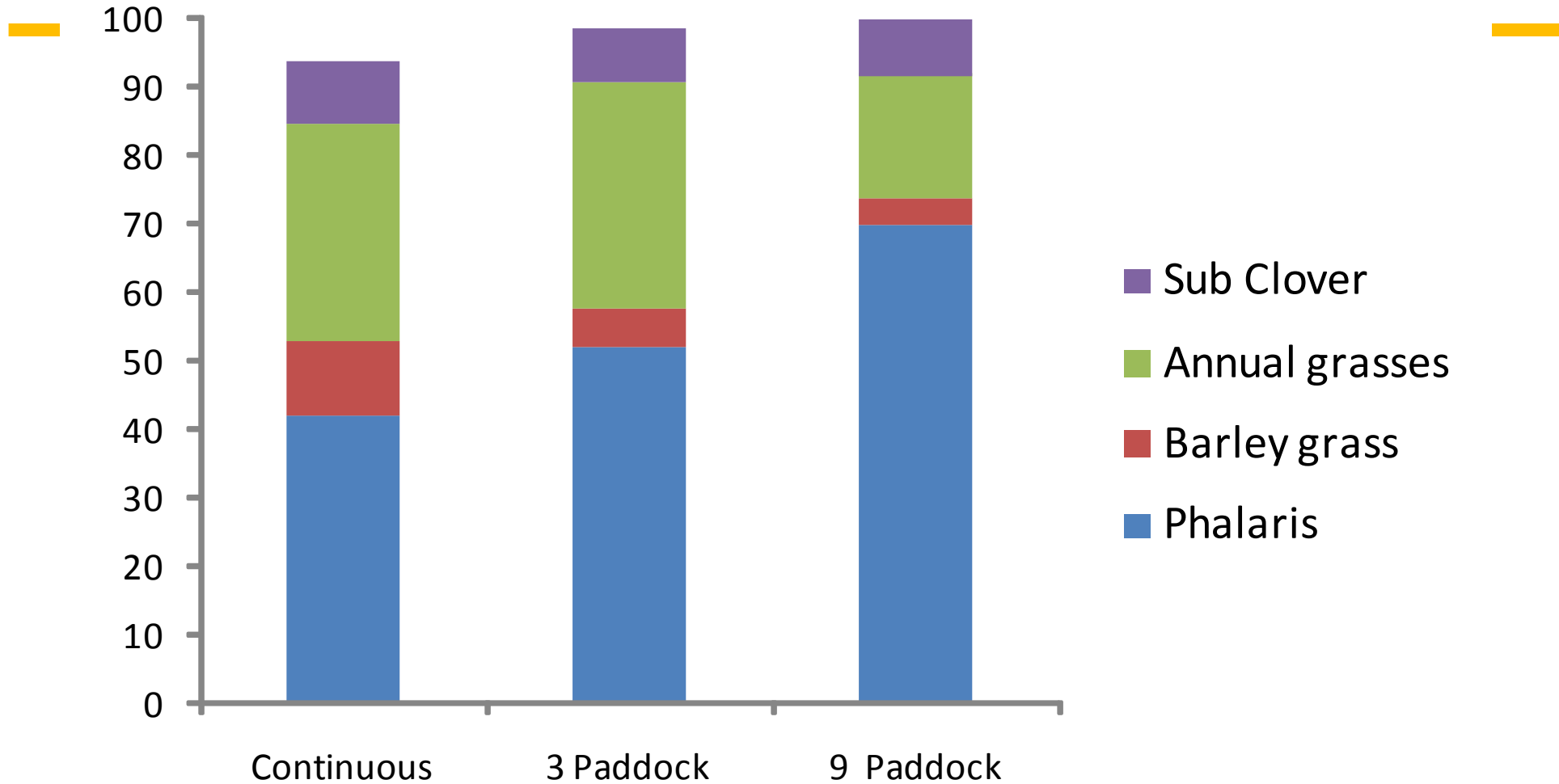
- Stocking rate by 1,3 and 9 paddocks
- Set stocked in spring and summer after first couple of years
- SR common rate after 1967
- Self replacing flock

TABLE 6

Main effects of subdivision and stocking rate on wool weight.

Treatment	Wool weight					
	1963†	1964	1965	3 year 1963-1965	1966†	1967‡
	<i>kg/head</i>					
Subdivision						
1-paddock	3.0	3.9	3.2	3.4	3.6	2.5
3-paddock	3.0	3.9	3.1	3.3	3.7	2.6
9-paddock	3.1	4.0	3.0	3.4	3.8	2.6
<i>P</i>	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Stocking rate						
20/ha	3.5	4.0	3.2	3.5	3.7	2.5
25/ha	2.9	3.9	3.0	3.3	3.8	2.6
30/ha	2.8	3.8	3.1	3.3	3.7	2.5
<i>P</i>	<0.001	<0.01	n.s.	<0.001	n.s.	n.s.
† 10 months growth only. ‡ stocking rate 17.3 ewes/ha. n.s. = $P > 0.05$.						

Significantly more phalaris and less barley grass – in 9 paddock system

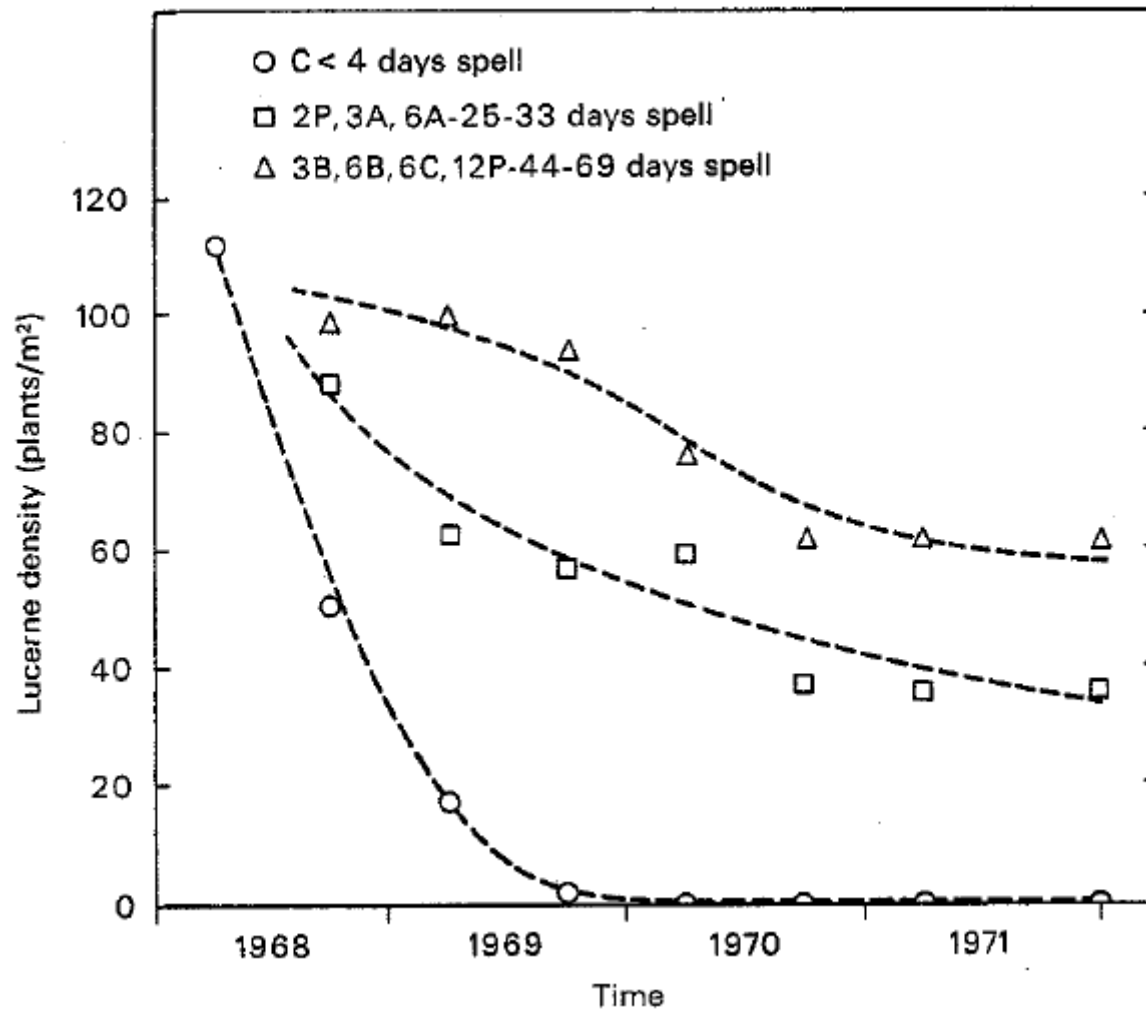


Canberra - Phalaris

- Not my words – Morley:
 - *The picture emerging is that annual grasses, and to some extent annual clovers, are reduced by intensive rotation to a point where the exploitation of the spring environment is reduced. (phalaris slow in early spring)*
 - *Rotational grazing on a 3 paddock system seemed to be a fair compromise in that it produced, in our experiments, more in winter than pastures which were set stocked and also had slightly more dry feed in summer*

Canberra - Lucerne

- Needs rotational grazing to persist...depending on stocking rate
- McKinney – length of the spell in Canberra, mixed pasture
- 1,2,3,6,9 with various speeds of rotation in 3 and 6 AND faster rotation in summer



The old story – set stocking kills lucerne

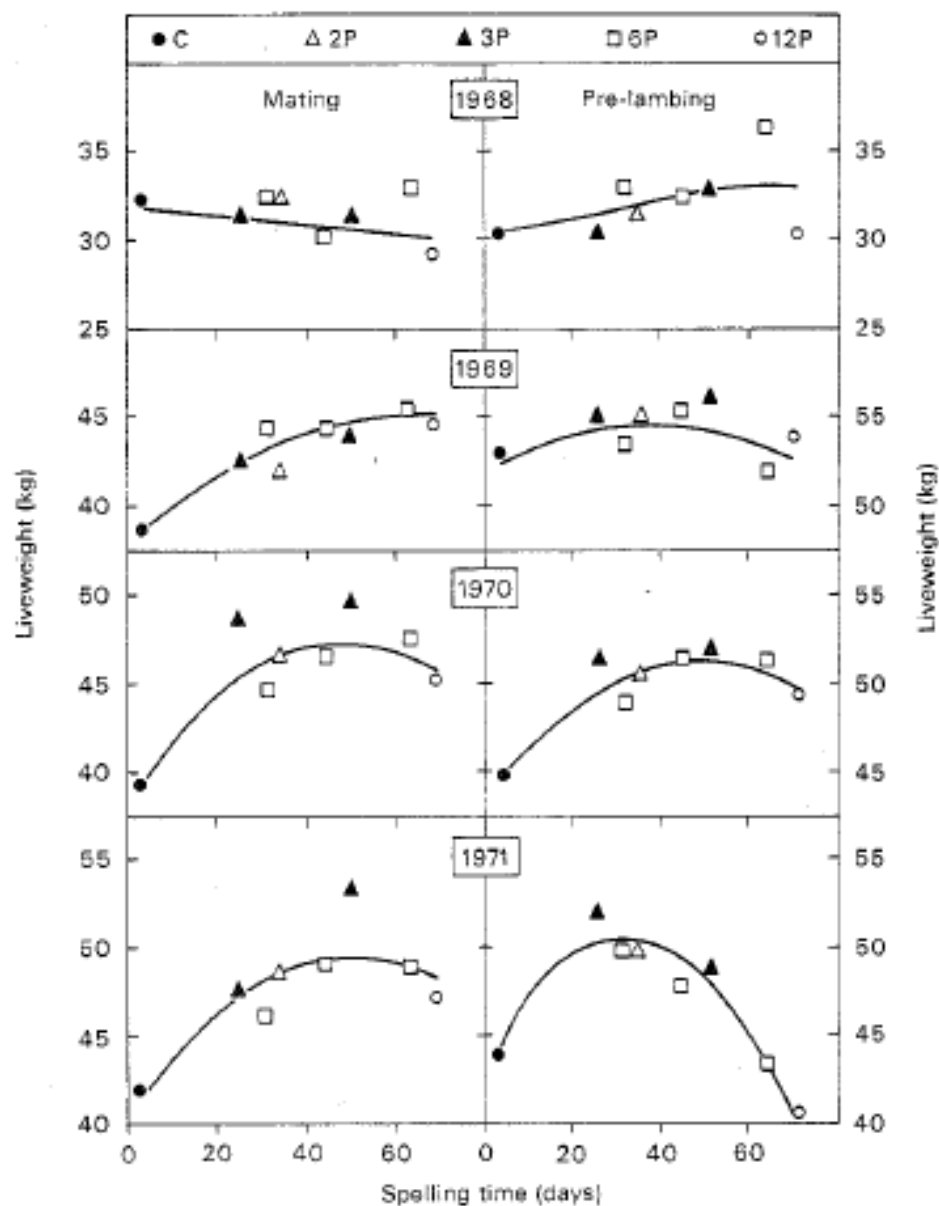


Figure 5—Liveweight plotted against spelling time, at mating (autumn) and pre-lambing (early spring).

- Rest...you can have too much of a good thing
- lower liveweight with much longer rest
- Annuals favoured by shorter spells...winter.

Canberra - Lucerne

- Where was the money made?
- Combining wool and lamb production and valuing each accordingly....
- The money was made in the 2-3 paddock systems.....need to consider persistence and composition

Grazing management

- Watch out for the zealots and conservatives – use the data and conclude:
- GM applied to influence persistence and composition but unlikely yield
- Grazing management will always result from compromise
- Monitoring paddocks become a key consideration.