MEAT & LIVESTOCK AUSTRALIA

meatup FORUM

For the latest in red meat R&D

How to best use your feedbase

What’s the next level?

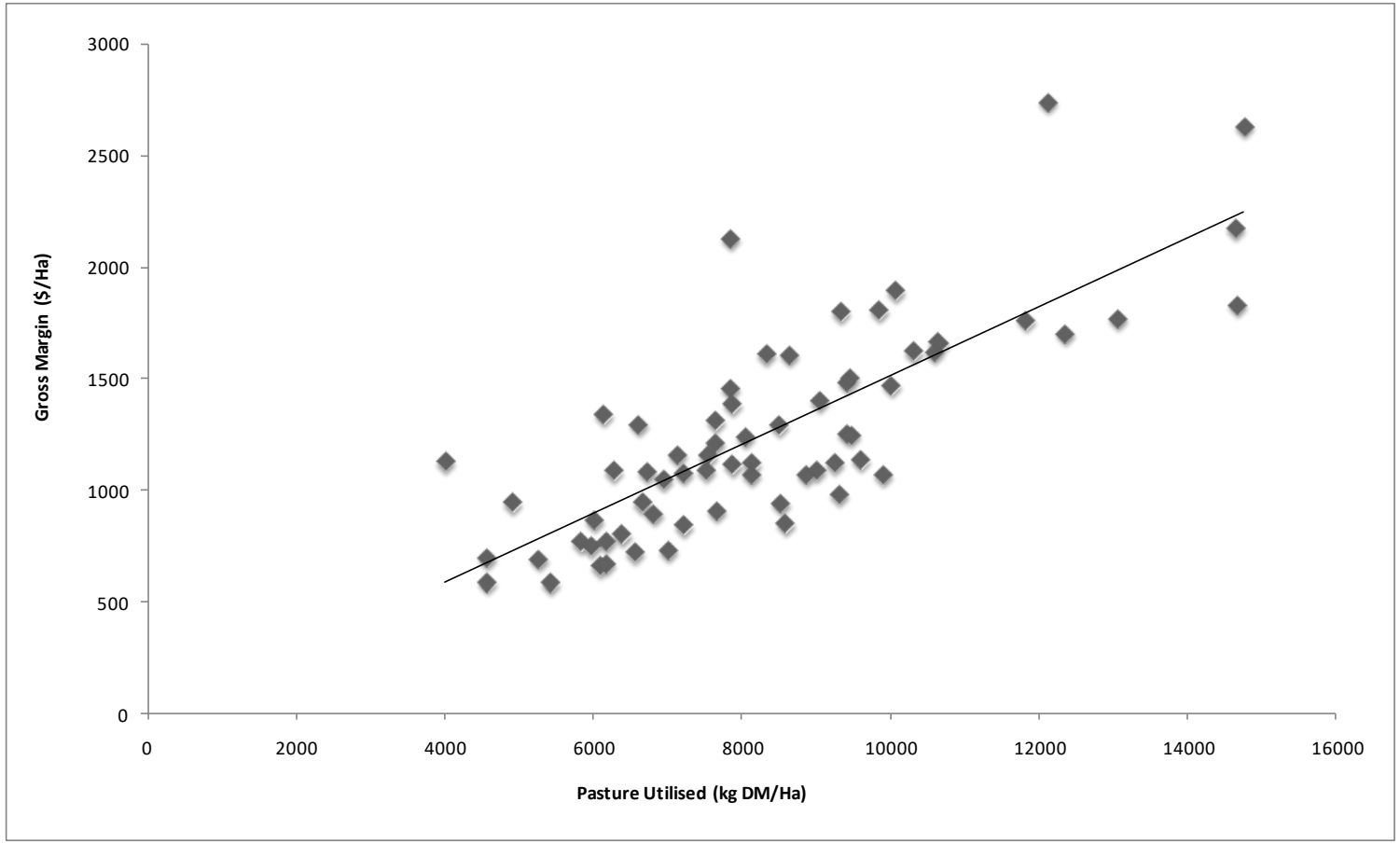
Basil Doonan

Pinion Advisory

Outline

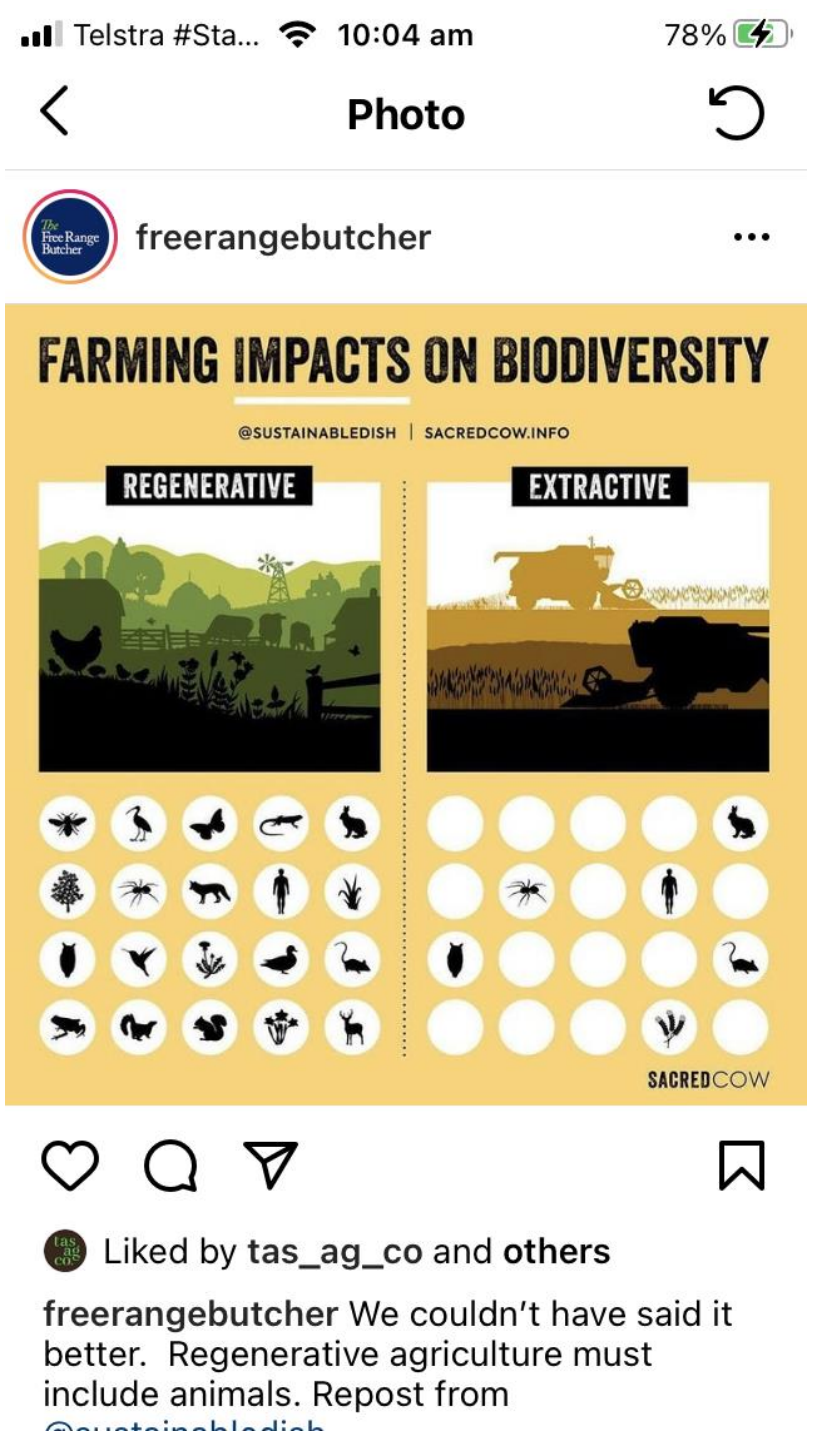
1. Getting the most from your feedbase
2. Improving pasture utilisation
3. Taking grazing management to the next level
4. Take home messages
5. Tools and resources

Linking productivity to profit



Methodology and Practice

- Method
  - Set stocked
  - Rotational
    - Random movement
    - Motivated movement (time)
    - Motivated movement (ground cover/mass)
    - Motivated movement (rainfall)
    - Motivated movement (morphology)
- Practice
  - BMP
  - Any other!



Getting the most out of your feedbase

- Work out the costs and benefits of the methods
- Know your fodder flow
- Match your demand and supply

Work with mother nature

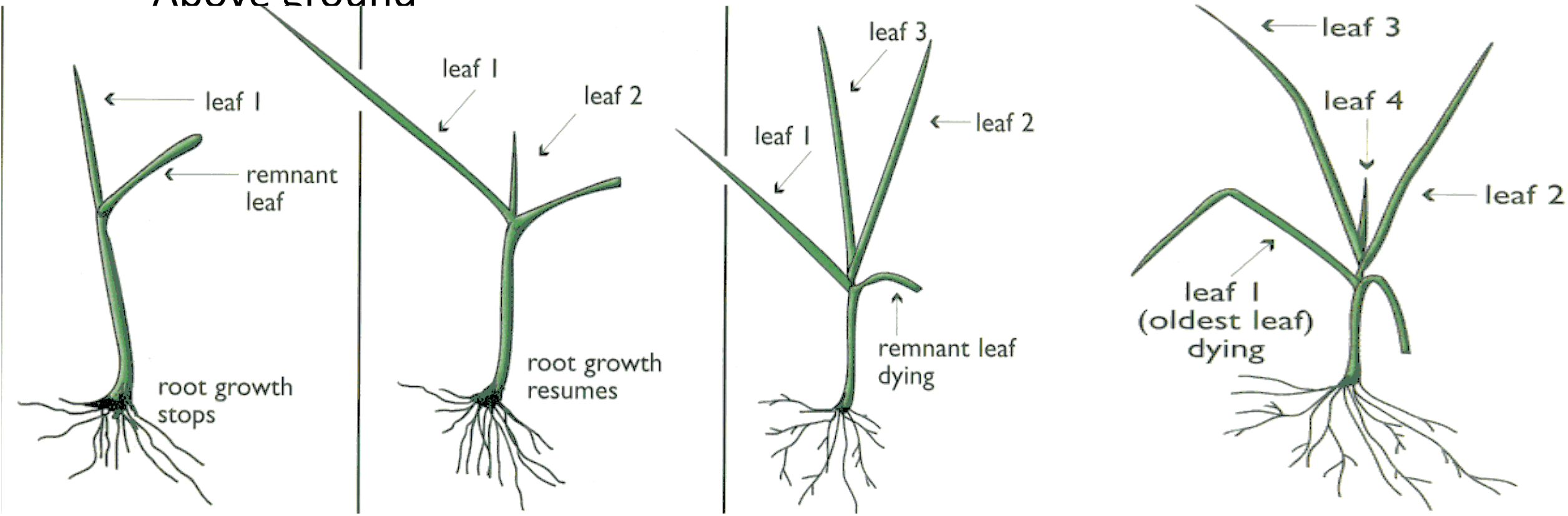
- Run a high Stocking Rate relative to Carrying Capacity
  - Easily said
- Take control of the plant and animal interface

Methodology for the next level?

- Rotational grazing
  - 50-100% more grown
  - Rest must be based on morphology
    - Quantity
    - Quality
    - Survival
  - Increased investment
    - Infrastructure
    - Time/labour
    - Skill development

Plant process

- Above ground



Plant process

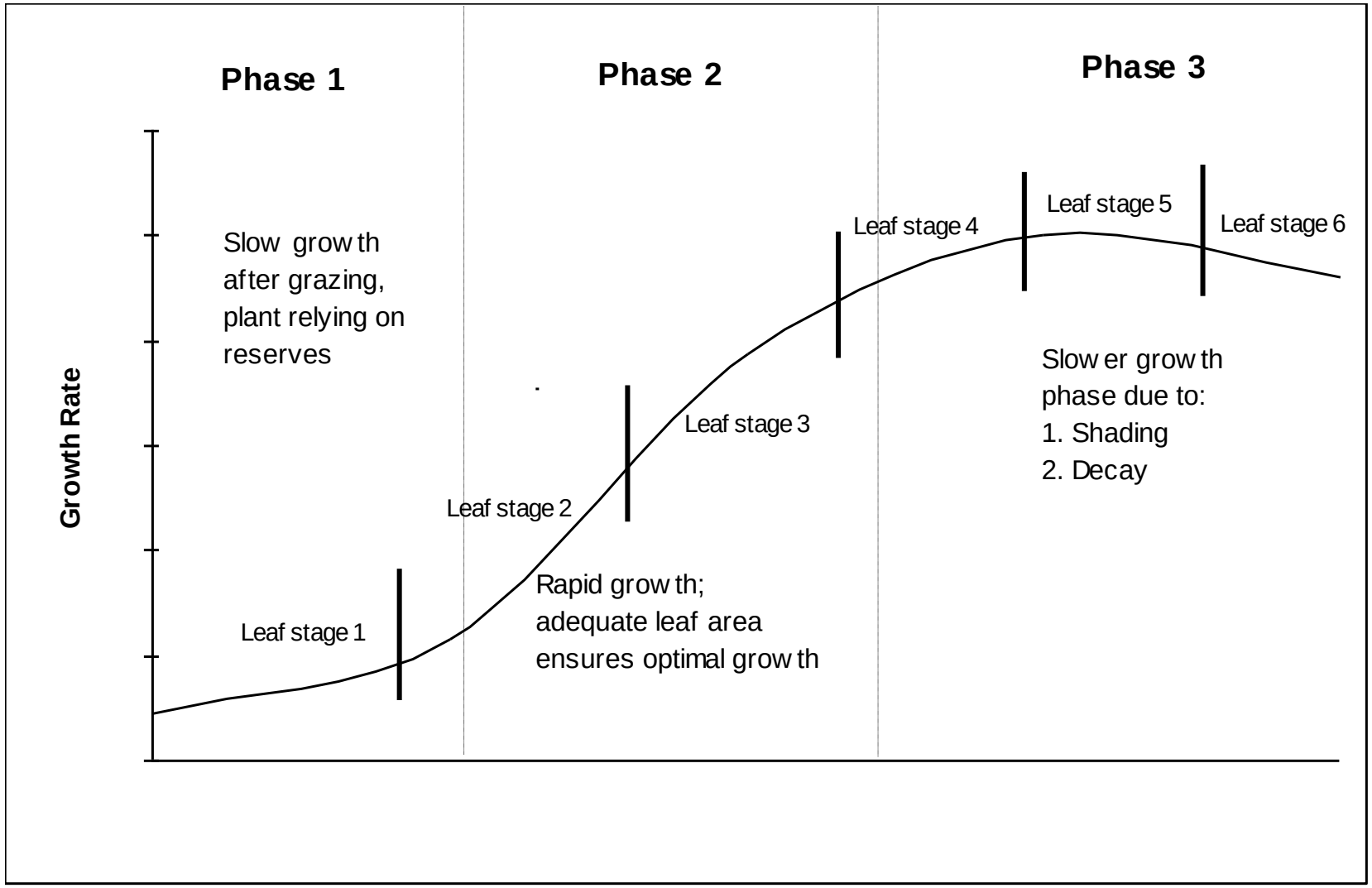
- Below gr

Right plant right place

Species	LS for Grazing
Ryegrass	2-3
Cocksfoot	3-4
Phalaris	4-5
Prairie Grass	4-5
Fescue	4-5
Kikuyu	2-5

The process

- How all plants grow



Regrowth – say for ryegrass (3 leaf plant)

- First leaf:
  - WSC begins to be stored again
  - Roots begin actively growing
  - However, there is an imbalance in minerals, WSC and protein in the leaves
- At this stage, plants are most vulnerable to re-grazing

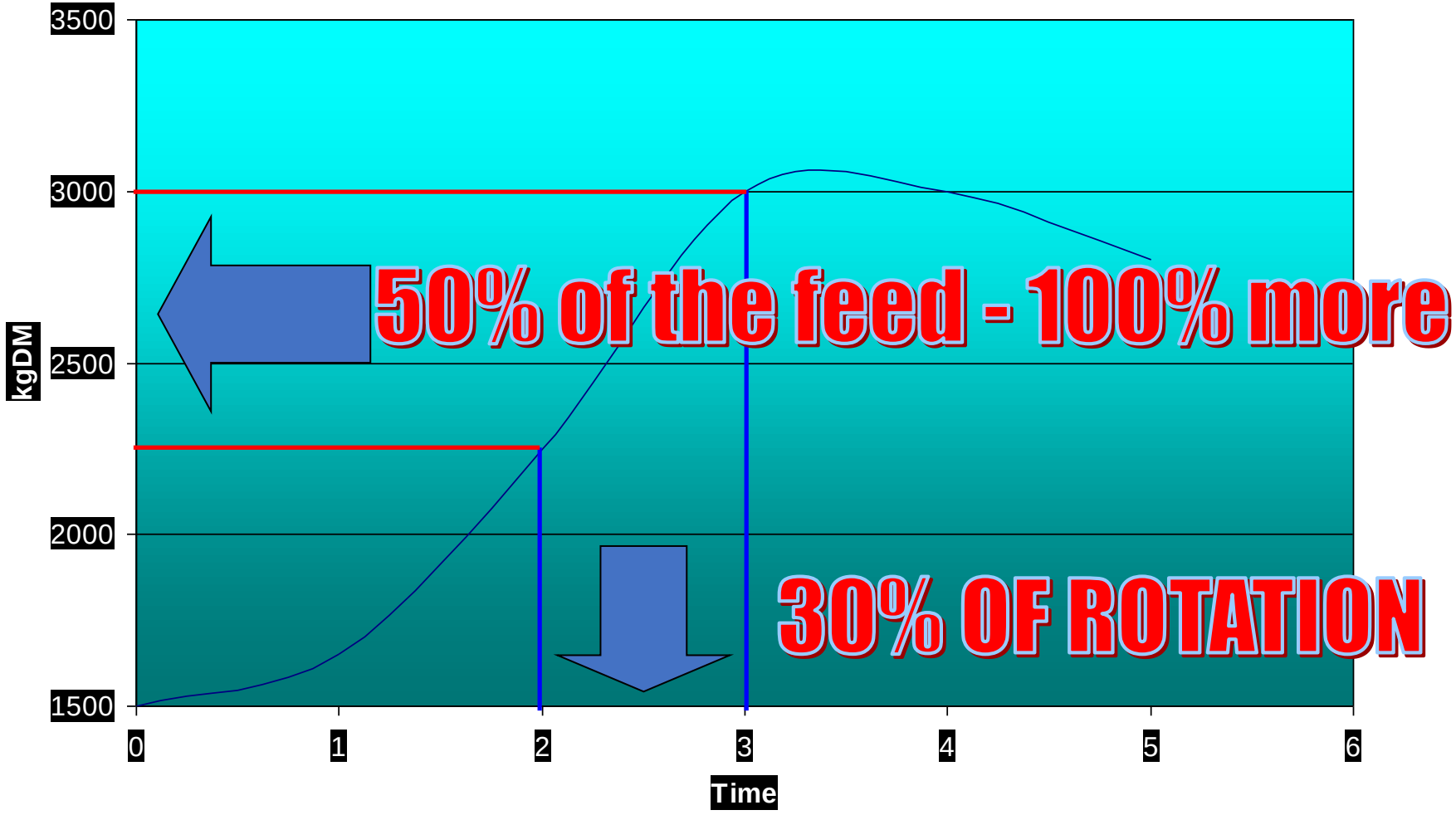
Regrowth: second leaf

- When 2 leaves have emerged:
  - WSC reserve levels have been built up enough for plants to be grazed again
  - Roots are actively growing
  - Tillering **starts** again
- The balance between minerals in leaves becomes more in line with animal requirements

Regrowth: third leaf

- When 3 leaves have emerged:
  - WSC levels have been fully restored
  - Root growth and tillering are fully active
  - Overall live top growth is at a maximum
- After this quality declines, and utilisation decreases, due to leaf death

Quantity


3500
3000
2500
2000
1500
kgDM
0
1
2
3
4
5
6
Time
50% of the feed - 100% more
30% OF ROTATION

Remember

- If we waste a leaf
  - We can loose 300-500 kg DM per grazing
    - 100 kg Lwt/ha
- If we fail to grow the leaves
  - We can lose 1,000-1,500 kg DM/ha
    - 250 kg Lwt/ha

Quality

Leaf	NSC/DIP	RDN (%)	Ca:P	K/(Ca + Mg)	Energy (MJ)
1	1:2	35	1:1	8	20%
2	1:1	25	1.5:1	4	50%
3	2:1	24	2:1	2.5	100%
Optimal	2:1	19	2:1	2.2	100%

Quality

Victoria Department of Primary Industries

FEEDTEST

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Victoria The Place To B

Feed Analysis Report

DEPT PRIMARY IND & FISHERIES
PO BOX 303
DEVONPORT TAS 7310

Work Order: 07-08-098
Data Received: 14-Aug-07
Data Reported: 17-Aug-07

Work ID: TDDF Demostration Farm
Submitted by: Christopher Haynes

Each of your samples has been allocated a laboratory number and can be identified as follows:

Lab No	Your sample identification	Collected By
02-A	Pasture, Ryegrass	13/08/07

Results of Analysis:

Test	Method	Units	02-A
Moisture	Wet	%	84.1
Dry Matter	Wet	%	15.9
Crude Protein (N x 6.25)	NIR	% of dry matter	26.3
Neutral Detergent Fibre	NIR	% of dry matter	43.5
Digestibility (DMD)	NIR	% of dry matter	86.0
Digestibility (DOMD)	Calculated	% of dry matter	79.7
Metabolisable Energy	Calculated	MJ/kg DM	13.2

Quality

Quality

Survival

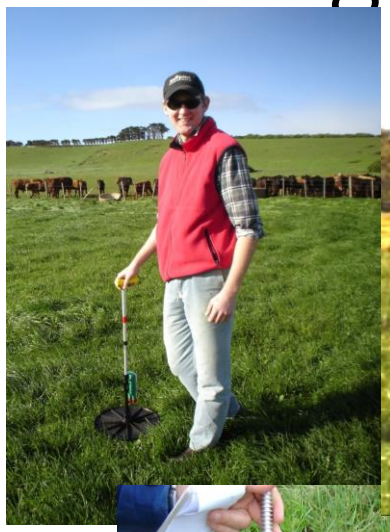
- Tillers live for about a year!
- Overgrazing decreases root reserves of energy
- If grazing duration is longer than 2-3 consecutive days
  - Plant energy reserves depleted (less than 1 leaf)
  - Regrowth is significantly compromised (10-30%)
- If greater than 5 consecutive days
  - Can lead to a 40-60% reduction in re-growth
  - And 40-50% tiller death

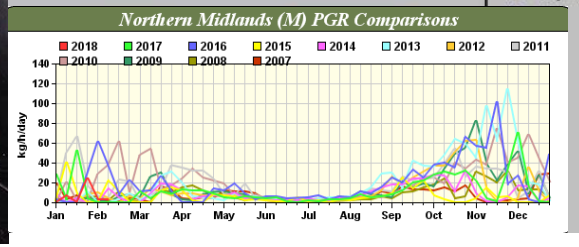
Fulkerson, W 1986

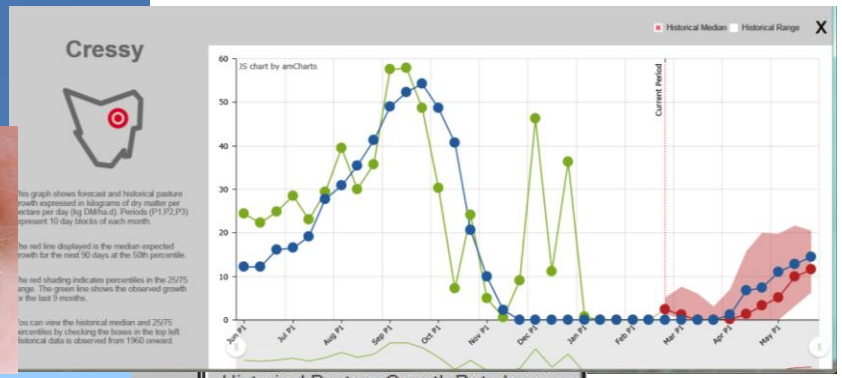
Rotation or rest

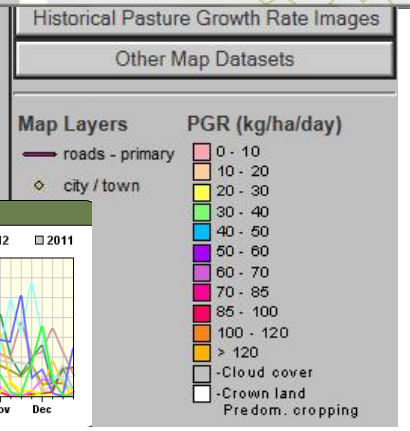
- Is a function of leaf appearance rate
  - Quality/quantity/survival
- Daily area fixed!

Measuring Pasture









Animal requirements

- We use simple rules of thumb (kg DM/hd)
- Cattle
  - Maintenance (Lwt/100 + 1 kg DM)
  - Pregnancy (plus 1-3 kg DM)
  - Lactation (plus 4 kg DM)
  - Liveweight (for each kg Lwt add 4 kg DM)
- Sheep
  - Maintenance is LW x 2/100 kg DM/day
  - Pregnancy is 1.0 kg DM/ewe/day
  - Lactation requires 1-1.5 kg DM/lamb
  - Liveweight gain is 4 kg DM/kg LW

Allows us to marry plant production to animal requirement

Practice/capability

	Profit
Feedbase	70%
Business	40%
People	30%
Operational	15%

Hoekema 2002

The problem

	MJ	Pasture
Maintenance	18754306	1875431
Production	6226800	622680
Purchased feed	0	0
Total		2498111

Total pasture utilisation /ha

3762 kgDM/ha

Pasture/ha for maintenance	75%	2824 kgDM/ha
Pasture/ha for beef production	25%	938 kgDM/ha

Cents per kilogram of Drymatter $0.02

DSE/ha 13.9

ROC 2.4%

Solution

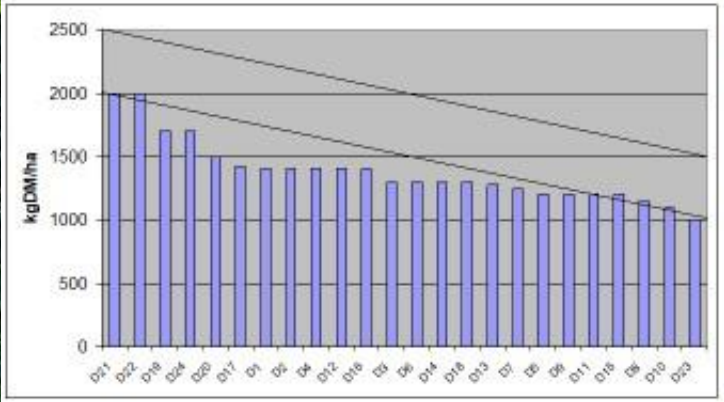
	MJ	Pasture	
Maintenance	18754306	1875431	
Production	12426800	1242680	
Purchased feed	0	0	
Total		3118111	
Total pasture utilisation /ha		4696	kgDM/ha
Pasture/ha for maintenance		60% 2824	kgDM/ha
Pasture/ha for beef production		40% 1872	kgDM/ha
Cents per kilogram of Drymatter		$0.01	
DSE/ha		17.3	
ROC		7.9%	

Bruces

- 60 ha
- Stanley (700 mm)
- Farm resource
  - Ryegrass/Cocksfoot/Prairie grass
  - Sandy soils
  - Good fertility
  - 16 paddocks
- Multiple mobs/silage

Lesters

- 60 ha
- Lileah (1,200 mm)
- Farm resource
  - Ryegrass/cocksfoot/white clover
  - Red soils
  - Good fertility
  - 24 paddocks
- 180 Trade cattle (average 300 kg)



Results – Physical

	Historical	PIRD Trial
Pasture eaten (kgDM/ha)	5,440	6,790
Pasture maintenance (kgDM/ha)	4,060	4,240
Pasture liveweight (kgDM/ha)	1,380	2,550
Pasture maintenance (%)	75	62
Pasture liveweight (%)	25	38

Iain Bruce 2008 Masters Paper

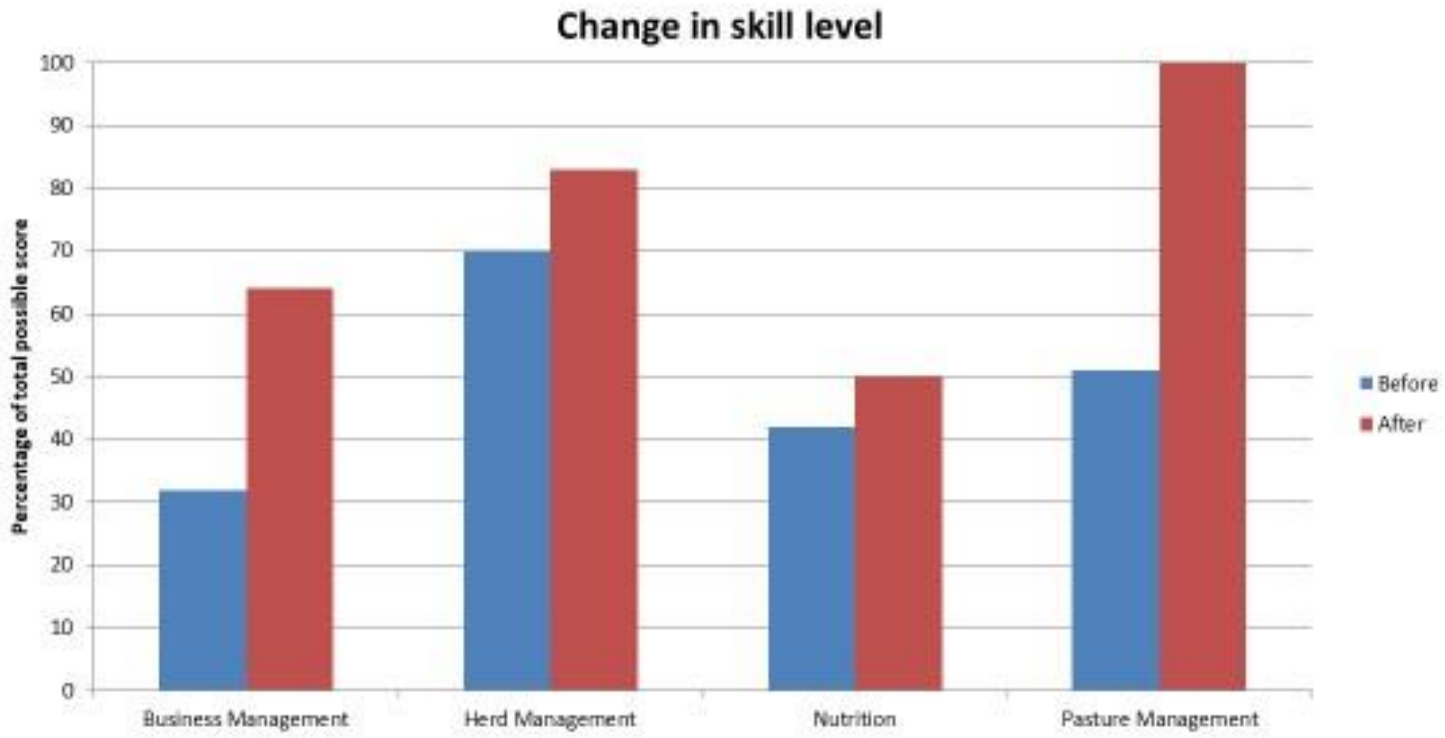
Results – Economic

	Before	After
Income	$319,000	$532,000
Variable costs	$129,000	$167,000
Gross margin	$191,000	$364,000
Overhead costs	$119,000	$128,000
EBIT	$72,000	$237,000
RoC	1.8%	5.6%

Iain Bruce 2008 Masters Paper

Practic

Results - skill



Case Study - Landfall

- Archer family
- Sheep and Cattle
- 700 mm rainfall

LANDFALL
ANGUS

	2011	2012	2013	2014	2015	2016	2017	2018	2019	% Change
Total Effective Area (ha)	2,100	2,100	2,250	2,250	2,100	2,100	2,420	2,420	2,550	21%
Irrigated Area (ha)	220	220	220	250	250	250	260	280	280	27%
MWSR (DSE/ha)	11.8	14.1	14.3	13.3	15.3	15.2	14.1	14.7	15.9	42%
AASR (DSE/ha)	17.7	21.2	21.5	20.0	27.5	27.4	28.3	29.3	31.8	80%

Case Study - Nosswick

NOSSWICK PTY LTD

- Colvin family
- Sheep
- 550 mm rainfall

	2013	2014	2015	2016	2017	2018	2019	% Change
Total Effective Area (ha)	435	435	435	435	435	435	435	0%
Irrigated Area (ha)	200	200	200	200	200	200	200	0%
MWSR (DSE/ha)	9.0	13.3	14.9	16.9	17.6	17.9	17.9	99%
AASR (DSE/ha)	14.2	21.0	24.1	27.9	30.2	31.8	33.1	133%

Case Study - Skyhaven

- Chris MacQueen
- Breeder
- 750 mm rainfall

	2014	2015	2016	2017	2018	2019	2020	% change
Total effective area (ha)	640	818	885	922	950	955	955	49%
Irrigated area (ha)	0	0	0	0	0	0	0	0%
Breeders	585	687	873	905	955	1008	1100	88%
MWSR (DSE/ha)	9	10	12	13	15	18	20	122%
AASR (DSE/ha)	12	12	14	19	22	26	28	133%
Profit/ha ($)	97	190	376	560	806	812	1,000	931%
ROC (%)	2.1	5.1	5.9	8.8	12.4	12	14	567%

Targets

- 1 tonne feed utilised per 100 mm rainfall
  - Feed an annual stocking rate of 3-3.5 DSE /ha/100mm
- 40% of pasture eaten to saleable product
- 80-90% diet as directly grazed feed
- 5% only of the farm renovated annually

Take home messages

- Increasing utilization means increasing stocking rate
  - Grow more better feed
  - Match demand and supply
- Increasing performance requires
  - Investment in infrastructure
  - Investment in capability
  - Measuring
- Don’t confuse the method with the practice
  - No tool or method can compensate for poor management
- Rotational grazing based on morphology has the most potential for upside
  - Cost dependent

Tools and resources

- MLA Feedbase planning and budgeting tool
- MLA Stocking Rate Calculator
- PGS Pasture Principles
- PGS Gra$$ to Dollars
- MLA & SFS Pasture Paramedic

Profitable
Grazing Systems
your pathway to success