RED MEAT UPDATES

TASMANIA

26 July 2024

Accelerating performance through pasture

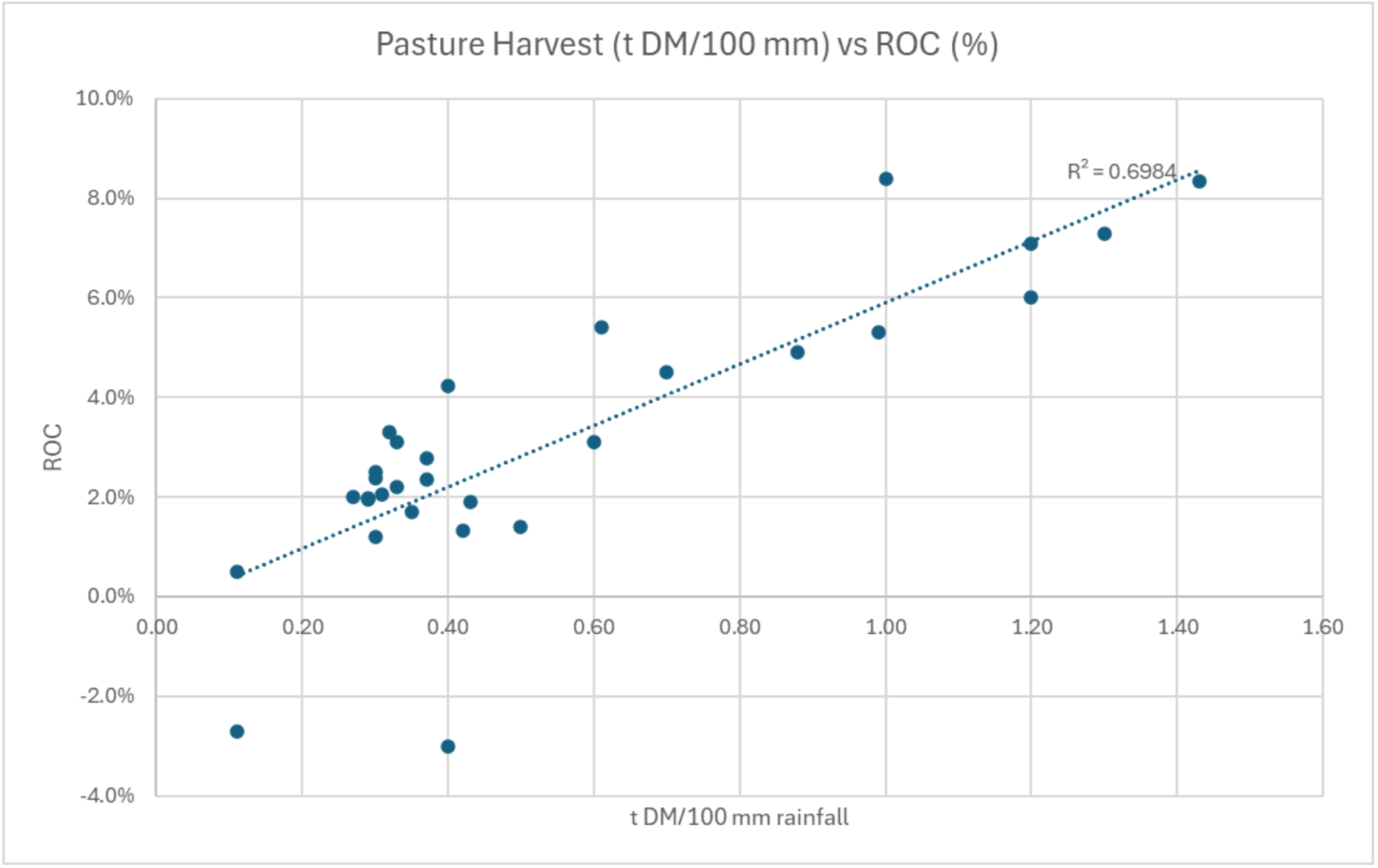
Basil Doonan

Pinion Advisory

Background

- The measure is pasture harvest (DM)/100mm rainfall.
- A tonne DM eaten/100mm rainfall
  - is about 3.3 DSE/100 mm rainfall
    - 1 DSE is 300 kg DM
- Talking average rainfall above 500 mm and seasonal.
- As an example, for a 600 mm rainfall area:
  - 1 tonne DM/100 mm rainfall is 6 tonne harvested
  - equates to an average annual (AA) stocking rate of 20 DSE/ha.

Comparative analysis



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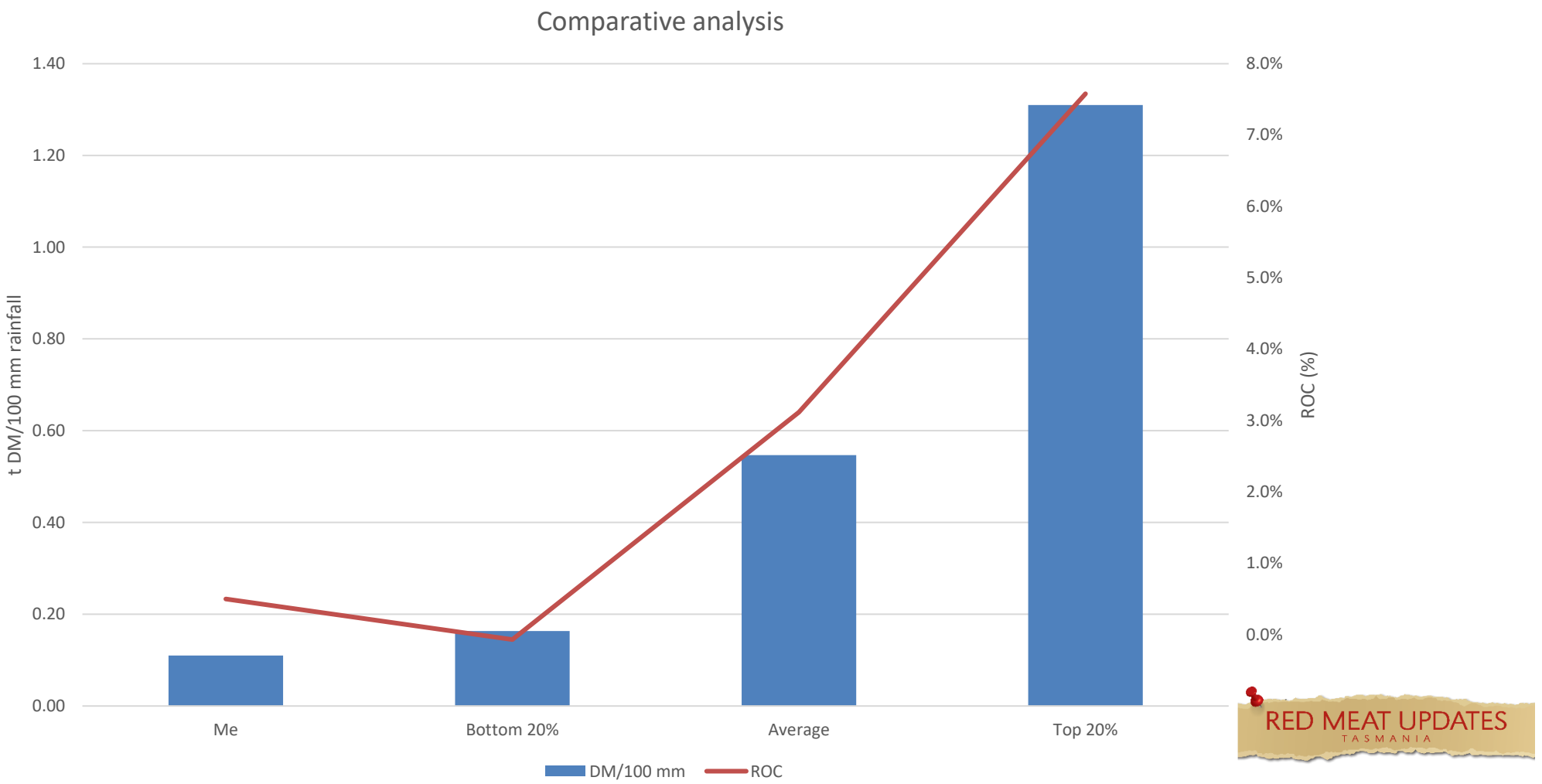
Comparative analysis



Benchmarking

- Find out HOW the best do WHAT they do!
  - do the right things
  - avoid doing them the wrong way.
- What can I do to increase business performance from pasture harvest?
  - increase quantity
  - increase quality
  - increase persistency
  - convert it to saleable product (red meat).

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Target

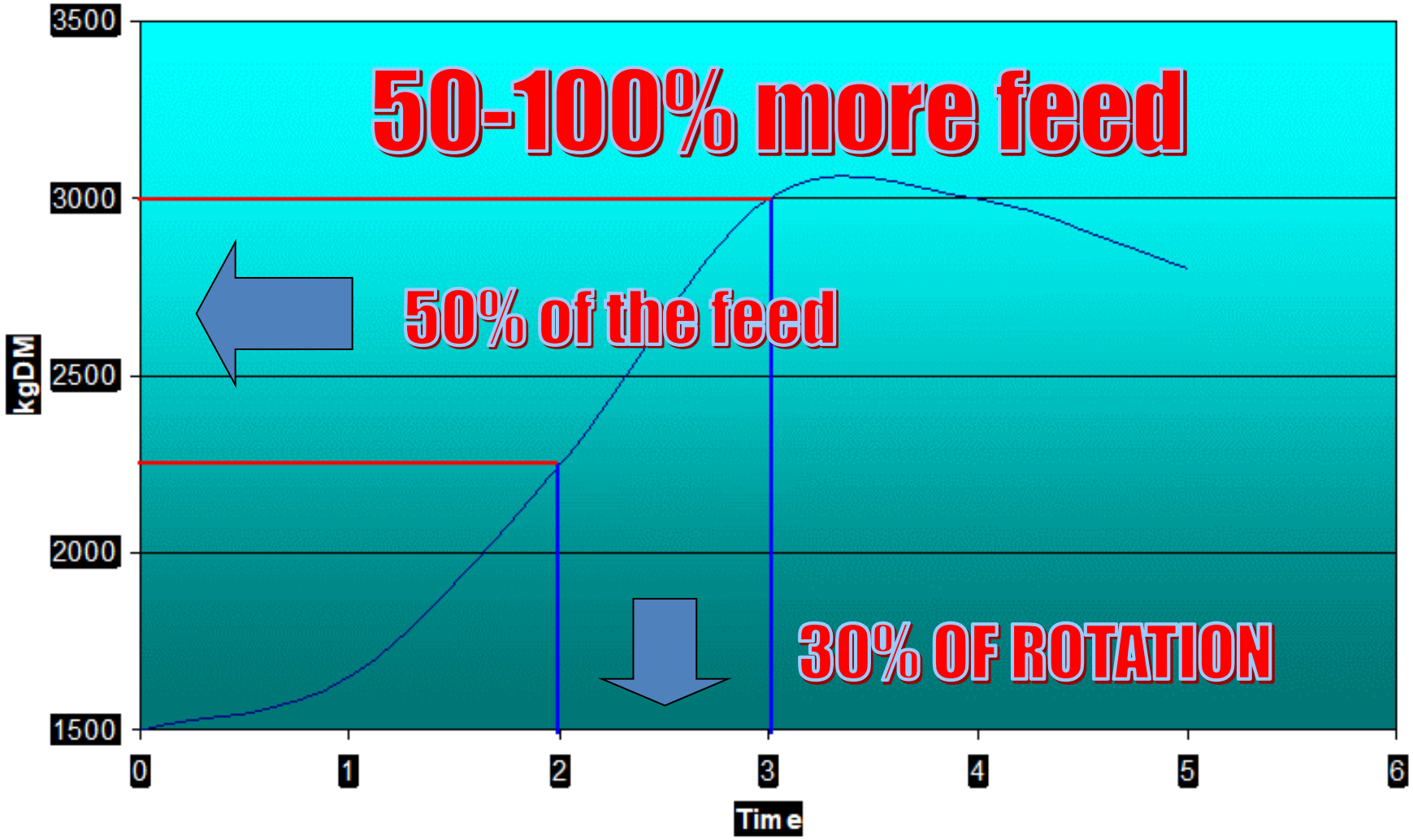
- Eat 1 tonne dry matter (DM) per 100mm rainfall
  - 3.3 DSE/100 mm rainfall

Pasture productivity

- 30-40% “right plant right place”
- 60-70% management
  - plant and animal interface.

Species	Leaf Stage	Rainfall
Ryegrass	2-3	650+
Cocksfoot	3-4	400+
Phalaris	4-5	400+
Prairie Grass	4-5	600+
Fescue	3-4	350+
Rhodes	3-5	310+
Buffel	3-5	300+
Panics	3-5	500+
Digit	2-5	400+
Kikuyu	2-5	400+

Pasture quantity - management



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Pasture quantity - management

- Measuring

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Pasture quantity - management

- Measuring
  - the 1.5t/100 mm club
    - high profit
    - high pasture harvest.

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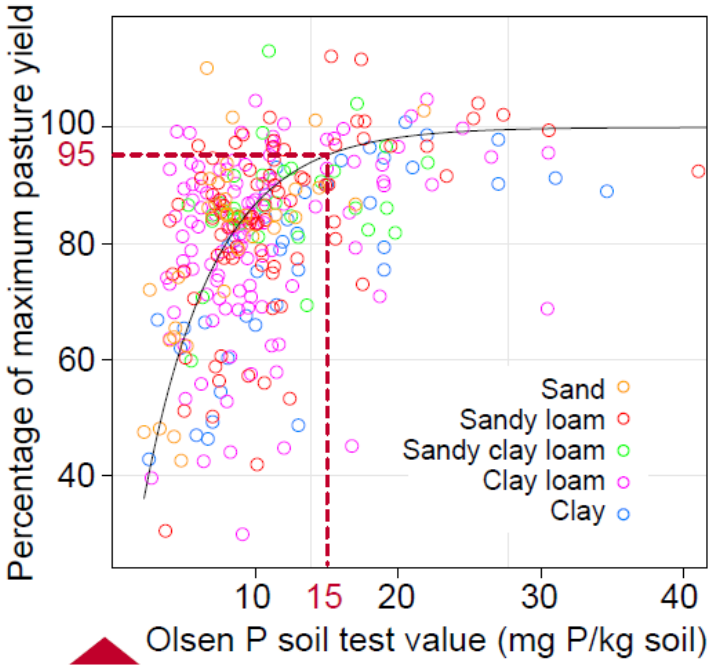
Pasture quantity - inputs

- Soil fertility
  - pH
  - SLAN methodology
    - sufficiency level of available nutrients.




BY INVITATION

The Albrecht System: uneconomical & outdated!

Local soil scientists are refuting the relevance of this 70-year-old system when advances in soil science point to its lack of scientific value and many shortcomings in field conditions.

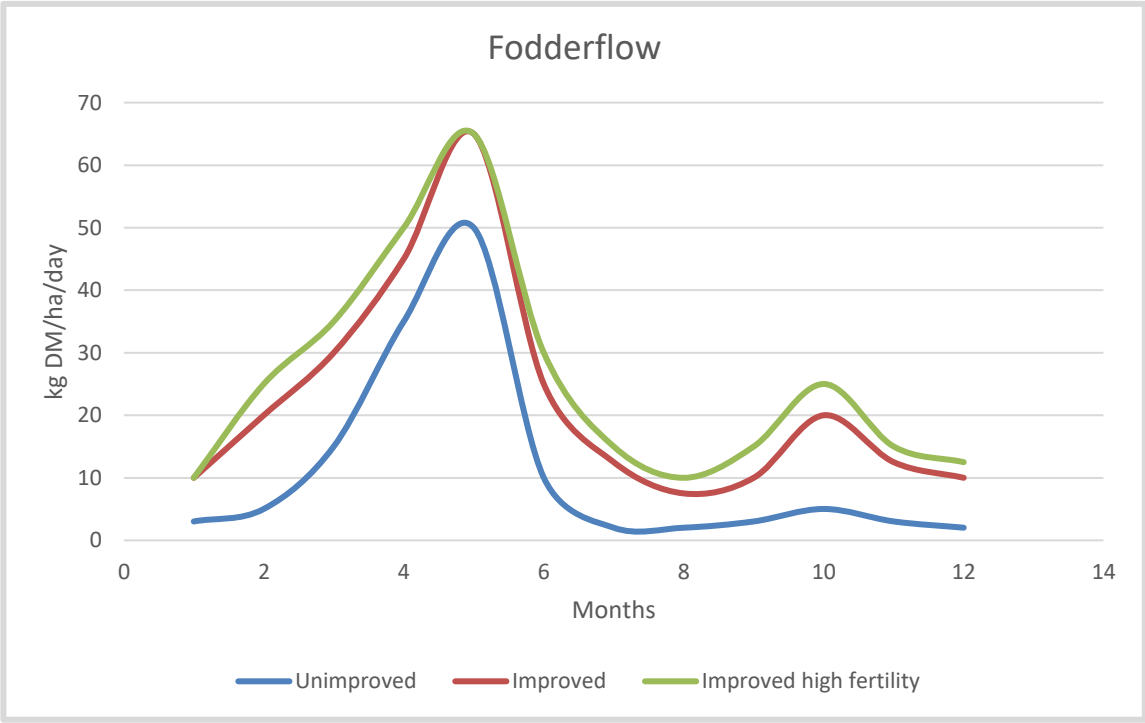
For many years, the Albrecht system of generating recommendations for soils has been strongly promoted in the popular press. (The Albrecht system is also known alternatively as the basic cation saturation ratio (BCSR) or the 'cation balancing' approach).

A recent article *Albrecht Misunderstood (Farmer's Weekly*, 12 April 2013) included a number of alarming statements to which we, as a group of soil scientists, wish to respond. Before addressing out in pots. When his concepts were translated to field conditions, as was done by Dr EO McLean, one of Albrecht's own PhD students, the Ca:Mg balancing approach was found to be invalid. Readers are referred to the following experimental studies in which the Albrecht approach was tested:

- Kopittke, PM & Menzies, NW. 2007. A review of the use of the basic cation saturation ratio and the 'ideal' soil. *Soil Science Society of America Journal* 71: 259-265.

or reputable private research institutes. They seemingly have nothing whatsoever to do with symposia or workshops dealing with advances in agricultural science, such as SA Society of Crop Production or Soil Science meetings, Fertiliser Society of SA workshops, or the annual SA Sugarcane Technologists' Association congresses.

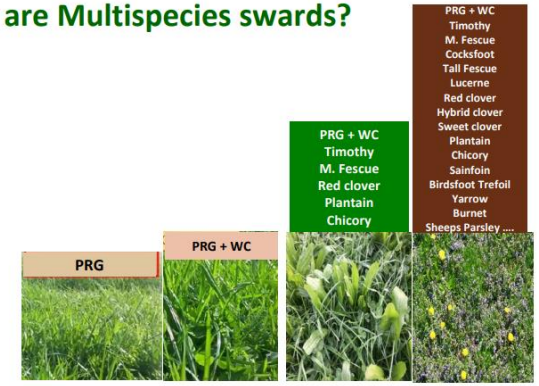
- A particular concern relating to the Albrecht approach



Pasture quantity - inputs

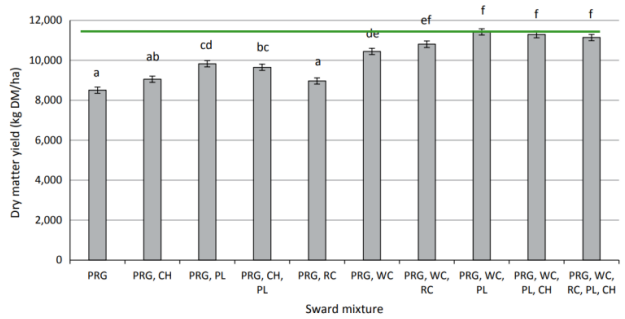
- Species
  - shotgun mixes
    - planning to fail
  - multispecies
    - add a legume to grass
      - 90-98% benefit of 6 or more species
        - » yield
        - » soil health
        - » animal performance

What are Multispecies swards?



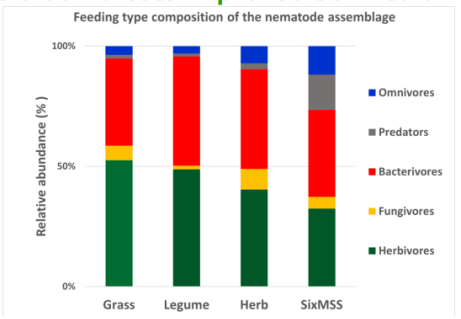
Productivity/+Nutrient availability/ +Climate stress/ +Pollinators/ +Pest resistance

Mixture benefits on yield of grazed plots



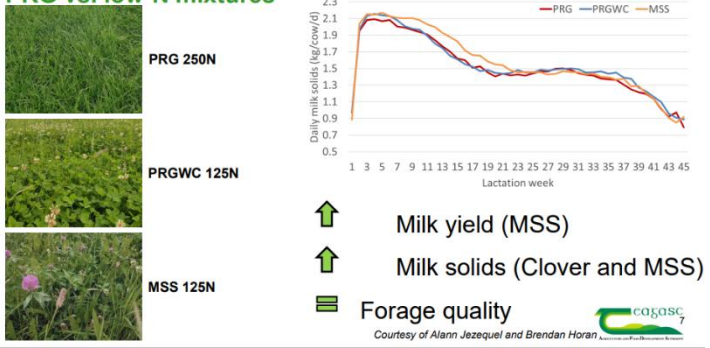
Hearn *et al.*, 2022

Plant diversity in multi-species mixtures increased nematode types that indicate improved soil health



Nematode occurrences in grass, legume and herb species, and in the six-species mix sward (SixMSS). (Ikoyi et al., 2023 European Journal of Soil Biology)

Irish Grazing Study (3): Similar milk production from high-N PRG vs. low-N mixtures



Courtesy of Alann Jezequel and Brendan Horan

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Pasture quantity - inputs

- Irrigation
  - triggering dormancy:
    - halves production for 6-8 weeks!
    - halves the response to nitrogen.
- Nitrogen
  - moisture cannot be limiting
  - rest is critical
  - strategic use can increase MWSR by 5 DSE/ha.

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Pasture quantity - inputs

- Gibberellic acid
  - specific environmental conditions
  - add nitrogen
  - ok when other costs met.
- Liveweight loss
  - add weight during feed surplus
    - Remove in a feed deficit
  - about 3 DSE/ha to MWSR

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Pasture quality

Phase	NSC/DIP	RDN (%)	Ca:P	K/(Ca + Mg)	Energy (MJ)
0-1	1:2	35	1:1	8	20%
1-1.5	1:1	25	1.5:1	4	50%
1.5-2	2:1	24	2:1	2.5	100%
Optimal	2:1	19	2:1	2.2	100%

Donaghy, D and Rawnsley, R: 2016

Pasture quality

Poor digestibility

Moderate digestibility

Excellent digestibility

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	42.5
Digestibility (DMD)	NIR	% of dry matter	86.0
Digestibility (DOMD)	Calculated	% of dry matter	79.7
Metabolisable Energy	Calculated	MJ/kg DM	13.2

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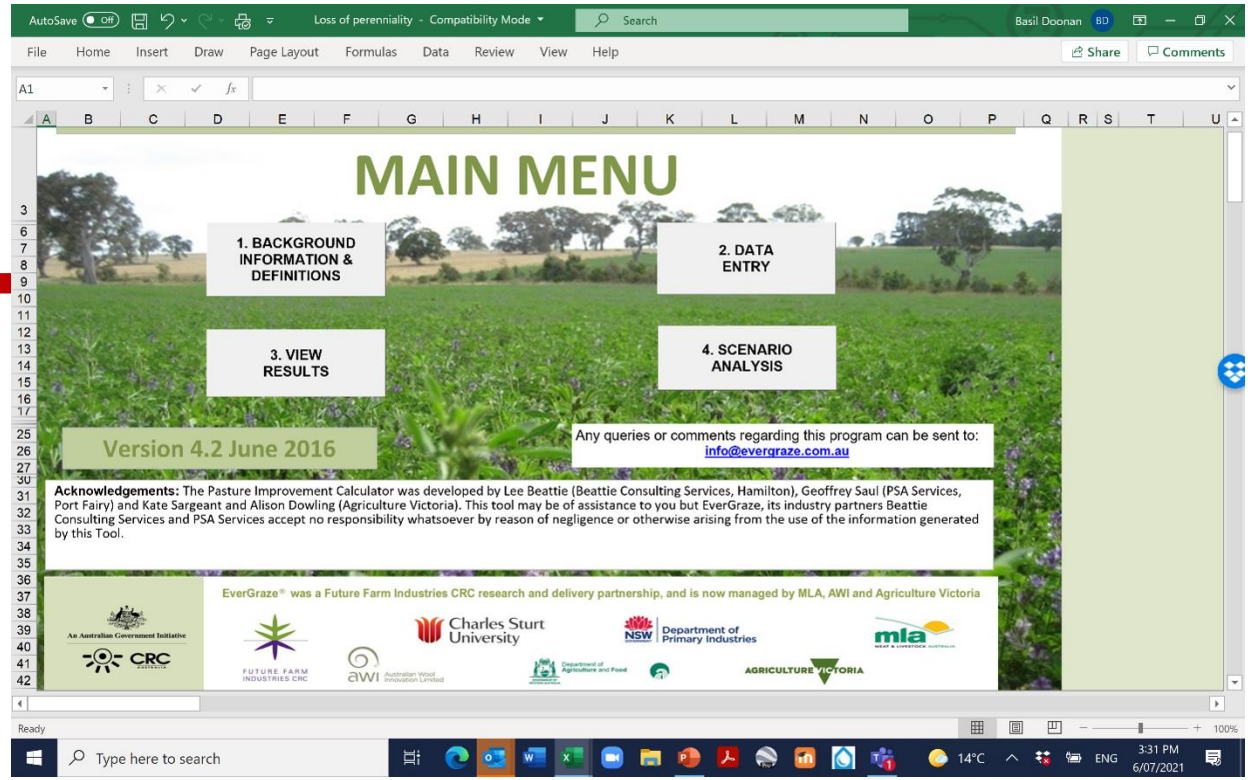
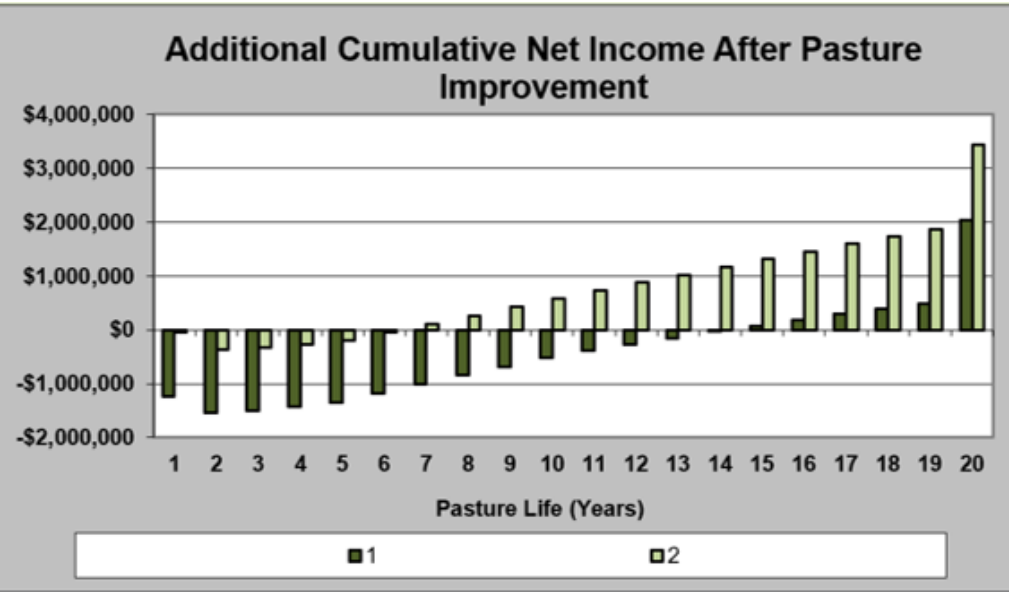
Pasture persistence

- Right plant?
- What's perennial
  - nothing lasts forever
    - renovation is about 5-10% pa
      - range 0-15%





RESULTS	1	2
Net Present Value	$178,745	$949,451
Internal Rate of Return	8.4%	27.4%
Peak Debt	-$1,543,009	-$357,035
Year of Peak Debt	2	2
Break Even Year	15	7

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The relative cost of pasture (600 mm)

	Best (1.5 t/100 mm)	Average (0.6 t/100mm)	Worst (0.3 t/100mm)
Tonnes DM/ha	9	3.6	1.8
Variable cost/ha	306	122	61
Fixed costs/ha	210	210	210
Cost/tonne	$57	$92	$150

The relative productivity of pasture (600 mm)

	Best (1.5 t/100 mm)	Average (0.6 t/100mm)	Worst (0.3 t/100mm)
Tonnes DM/ha	9	3.6	1.8
Kg Red meat/ha at 10:1	900	360	180
Kg Red meat/ha at 15:1	600	240	120
Kg Red meat/ha at 20:1	450	180	90

The relative value of pasture (600 mm)

	Best (1.5 t/100 mm)	Average (0.6 t/100mm)	Worst (0.3 t/100mm)
Tonnes DM/ha	9	3.6	1.8
Margin/ha at 10:1	$2,184	$748	$269
Margin/ha at 15:1	$1,284	$388	$89
Margin/ha at 20:1	$834	$208	-$1

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Animal productivity

- A DSE is an amount of energy
  - typically 75% maintenance and 25% production
  - at 60% maintenance and 40% production….profit doubles
    - higher weaning percentages
    - faster rate of turn-off

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Pasture renovation

1. Figure out what's at stake
   - biological composition (Lynch Method)
   - reduction in production x hectares x lost opportunity
2. Figure out the cost to get this back
3. Remove the limitations
   - what caused the degradation

Case study

- Archer family - Landfall

LANDFALL ANGUS

	2011	2012	2013	2014	2015	2016	2017	2018	2019 (f)	2019 Actual	2020	2021 (f)	% Change
Total Effective Area (ha)	2,100	2,100	2,250	2,250	2,100	2,100	2,420	2,420	2,550	2,680	2,799	2,969	41%
Irrigated Area (ha)	220	220	220	250	250	250	260	280	280	280	280	280	27%
MWSR (DSE/ha)	11.8	14.1	14.3	13.3	15.3	15.2	14.1	14.7	15.9	15.32	16.7	17.22	46%
AASR (DSE/ha)	17.7	21.2	21.5	20	27.5	27.4	28.3	29.3	31.8	32	33	35	98%

Case study

- Chris MacQueen - Skyhaven

	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%

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Top three take home messages

1. Benchmark to know where you are
    i. and to improve.
2. Stick to good science not forceful opinions
    i. stay off social media.
3. It takes time to acquire skill and confidence
    i. but not forever!

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Tools, resources & training

- Benchmarking groups
- Scenario analysis
- Grazing management
- Financial literacy

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Accelerating performance through pasture

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