



Designing Regenerative Grazing

That works in practice

Graeme Hand

graemehand9@gmail.com

0418532130



1

Agenda

1. **Our story**
2. Level of change and risk
3. Complexity
4. Landscape Function
5. Description of planned grazing extremes – forced variation, recovery, stock density and plant utilization
6. What works in practice
7. Coaching programme
8. Q&A

2

2

Our Story



- 1990 implemented HM and Holistic Planned grazing
- 1996 trained as an educator with Allan Savory (USA)
- Accredited with Savory Institute & HMI
- A focus on increasing farmer success led to a search for what do successful farmers do differently:
 - Stipa position allowed me to move across trainers and tribes
 - Barriers to adoption (Doug –McKenzie Mohr)
 - Complexity (Dave Snowden)

3

3

Agenda

1. Our story
2. Level of change and risk
3. Complexity
4. Landscape Function
5. Description of planned grazing extremes – forced variation, recovery, stock density and plant utilization
6. What works in practice
7. Coaching programme
8. Q&A

4

4

Handbrake turn?



5

Level of Change

- 1. Efficiency**
- 2. Substitution**
- 3. Redesign**

Source: Professor Stuart Hill

6

. Underestimating Risk

- ".....farm viability depends more on minimising losses than maximising production, and it is these accumulated losses which threaten farm business survival and growth".



Dr Tim Hutchings
& family

7

Risks in Agriculture

- 1. Debt**
- 2. Seasonal**
- 3. Market Price**

8

8

Agenda

1. Our story
2. Level of change and risk
3. **Complexity**
4. Landscape Function
5. Description of planned grazing extremes – forced variation, recovery, stock density and plant utilization
6. What works in practice
7. Coaching programme
8. Q&A

9

9

Complexity

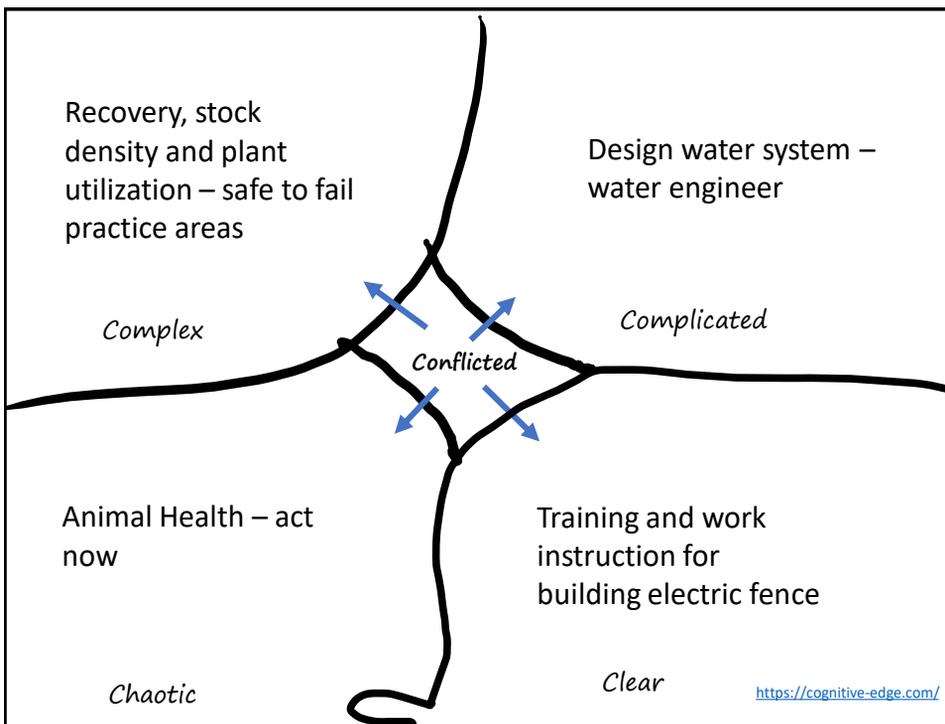
Source: <http://cognitive-edge.com>

10

10



11



12

Agenda

1. Our story
2. Level of change and risk
3. Complexity
4. **Landscape Function**
5. Description of planned grazing extremes – forced variation, recovery, stock density and plant utilization
6. What works in practice
7. Coaching programme
8. Q&A

13

13

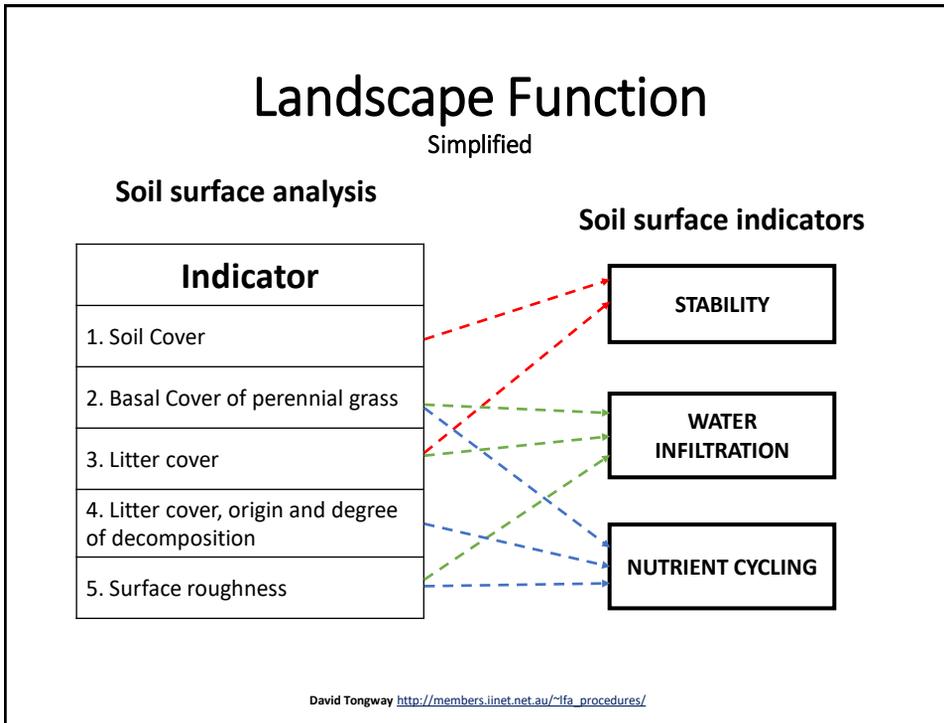
What is landscape function?

- Landscape function analysis (LFA) is a monitoring procedure that uses rapidly acquired field-assessed indicators to assess the biogeochemical functioning of landscapes.....

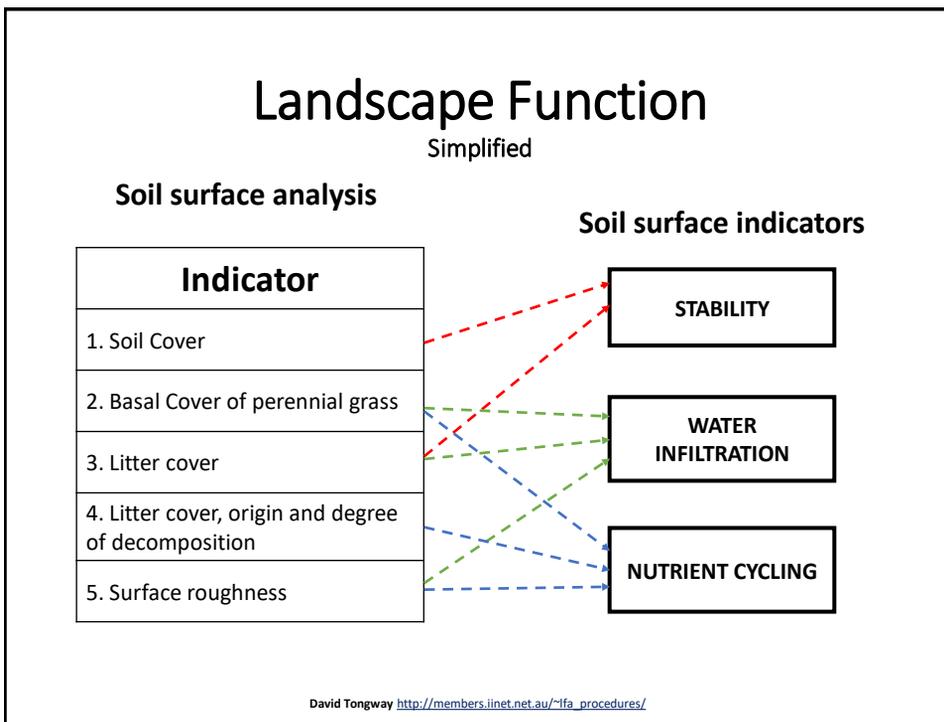
• LFA Manual © CSIRO Australia 2004



14



15



16

Same soil type – different management



Higher organic matter – more stable, increased infiltration and nutrient cycling

Stability	= 69.1
Infiltration	= 39.8
Nutrient cycling	= 31.7



Low organic matter – poor stability, low water infiltration and nutrient cycling

Stability	= 43.3
Infiltration	= 24.0
Nutrient cycling	= 11.5

17

Agenda

1. Our story
2. Level of change and risk
3. Complexity
4. Landscape Function
5. **Description of planned grazing extremes – forced variation, recovery, stock density and plant utilization**
6. What works in practice
7. Coaching programme
8. Q&A

18

18

Grazing Management Extremes

Low Impact High Frequency

- Recovery Time - Mix it up
- Eat a third
- Stock Density – Mix it up

High Impact Low Frequency

- Perennial grass recovery +
- Eat as deep as possible
- Maintain high stock density

19

J. Range Manage.
46:116-121, March 1993

Effects of short duration and high-intensity, low-frequency grazing systems on forage production and composition

C.A. TAYLOR JR., T.D. BROOKS, AND N.E. GARZA

Authors are experiment station superintendents, Texas Agricultural Experiment Station, P.O. Box 918, Sonora, Tex. 76080; research associate, Texas Agricultural Experiment Station; research associate, Texas Agricultural Experiment Station.

Abstract

Research was conducted at the Sonora Research Station during a 4-year period (1984 to 1988) to measure differences in herbaceous vegetation response between two 7-pasture 1-herd grazing systems. Grazing tactics were short duration (SDG-7 days graze, 42 days rest) and high intensity, low frequency (HILF-14days graze, 84 days rest). Stocking rate for the 2 treatments was 10.4 ha/auy. Total aboveground net primary production (ANPP) varied significantly among years but not between grazing treatments. Significant, divergent shifts in composition did occur over the 4 years as a function of grazing treatment. Shortgrass production in the SDG pastures increased from 45% of the total ANPP for year 1 to 74% for year 4. Shortgrass ANPP in the HILF pastures comprised 44% of the total herbaceous production for year 1 and 51% for year 4. Midgrass ANPP in SDG pastures comprised 3.8% of the herbaceous production for year 1 and 13.6% for year 4. Midgrass production in the HILF pastures represented 4.7% for year 1 and 33.9% for year 4. **Our data indicate the SDG system did not promote secondary succession from shortgrasses to midgrasses as effectively as did the HILF system.**

20

Agenda

1. Our story
2. Level of change and risk
3. Complexity
4. Landscape Function
5. Description of planned grazing extremes – forced variation, recovery, stock density and plant utilization
6. **What works in practice**
7. Coaching programme
8. Q&A

21

21

Leaf emergence

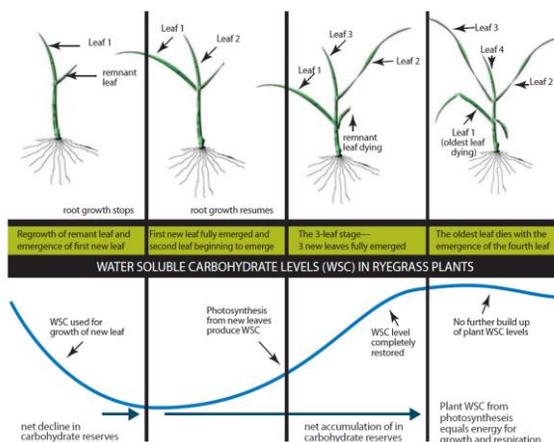


Figure 1. Leaf rognrowth and water soluble carbohydrate levels of a ryegrass tiller following defoliation (adapted from Donaghy, 1998).

23

23

<https://www.dairyaustralia.com.au/farm/feed-base-and-animal-nutrition/pasture/perennial-ryegrass-management>

Definition of perennial grass recovery

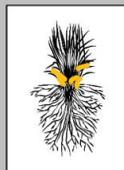
- When it looks like an ungrazed plant & contains fresh yellow litter
- Depends on temperature and soil moisture & previous management which means we need to monitor



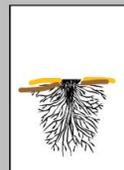
24

To be safe, we assume that the grazing has been severe, because some plants are always grazed severely, and thus we focus on plant growth rate.

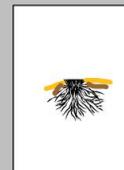
Savory, Allan. Holistic Management, Third Edition: A Commonsense Revolution to Restore Our Environment (p. 334). Island Press. Kindle Edition.



Mature plant ready to be grazed.



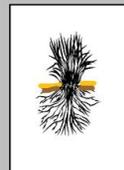
Animal has grazed plant severely. With most leafy material gone, plant is unable to convert the sunlight energy it needs to grow.



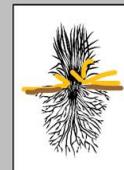
Thus, plant mobilizes energy from crown and roots, killing off many roots.



Leaves are beginning to grow on energy from crown and roots. If animal returned now, plant would be overgrazed.



Leaves are now converting enough sunlight energy not only to grow but also to reestablish roots. If animal returned now, plant would be overgrazed.



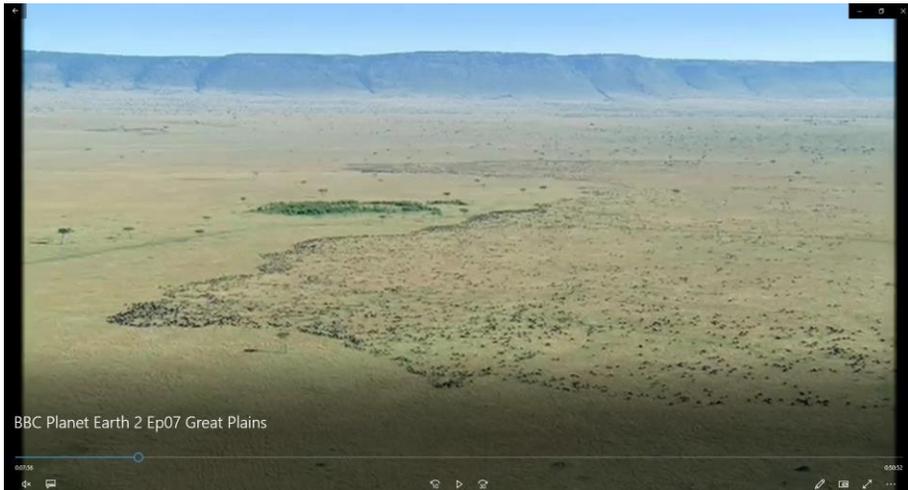
Leaves have fully regrown and nearly all roots have been reestablished. If animal returned now, plant would not be overgrazed. **Contains fresh yellow litter**

© 2016 SAVORY INSTITUTE

25

Mimicking nature

Stock density and utilization



26

Mimicking nature



27

Mimicking nature



28

Mimicking nature



29

Role of predators



30

Time

High utilization ensures better grasses are not disadvantaged

One of a few severely grazed perennial grass plants among millions of plants after one horse had grazed for one hour in a paddock.



Savory, Allan. *Holistic Management, Third Edition: A Commonsense Revolution to Restore Our Environment*. Island Press. Kindle Edition.

31

31

Grass Productivity

Andre Voisin

"To what height should grass be grazed?" Page 56

.....The logical idea is therefore not to graze the sward too closely so that the plant will be left with sufficient green surface, the chlorophyll of which will be able, right from the start, to carry out its work of synthesis and immediately aid regrowth. In this way the duration of the initial period of slow regrowth is reduced. From the plant physiology point of view one might say that the low level part of the S curve is reduced.

32

Grass Productivity

Andre Voisin

"To what height should grass be grazed?" Page 56

Unfortunately we see here again perfectly sound, theoretical and scientific considerations running foul of practical obstacles which could not be foreseen a priori.

Cows (or animals in general) have the habit of first grazing down the parts they prefer before going on to the herbage they like less."

33

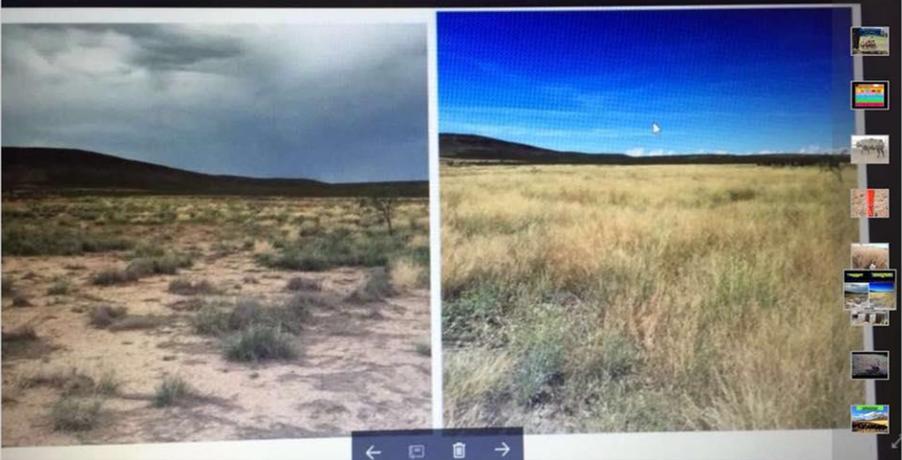
Man, Cattle and Veld

Johann Ziestman

- Such information is as useless as..... the recommendation that grass should not be defoliated close to the ground as such grass takes longer to recover. The latter information may be of value one day when cattle have been taught to graze at an even height (Page 34).

34

Pastoreo regenerativo Servando-Diaz



“Non selective or severe grazing has so many advantages over grazing selectively which demands coming back faster. On the left grazed selectively 2-3 times per year for over 12 years. On the right, after only one severe grazing followed by a full growing season rest. Same paddock, change of grazing type which leads to a much better succession and desirable plants recruitment. This type of grazing sequesters MUCH MORE carbon and benefits the WHOLE”. Source: Jaime Elizondo <https://www.facebook.com/search/top/?q=jaime%20elizondo%20braun>

35

Safe to fail practice areas

- Small
- Grazed for a couple of hours
- Locked up for range of recoveries
- At least one at 6 months and one at 12 months



36

36

Safe to fail practice areas

- Animals monitored closely
- Soil surface left covered
- Couple of practice areas with a range of recoveries
- Take photos and monitor



37

37

Biological & Landscape Function Monitoring sheet



Paddock ID: _____ TREATMENT: _____ PHOTOS: _____ DATE: _____

Throw number	What the dart hit (tick one)										Nearest perennial grass (complete all)		Age Nearest Perennial			Basal area		Observations			
	Bare Soil	Litter No Decomp	Litter Slight Decomp	Litter Fungal Decomp	Perennial Grass Base	Capped soil surface	Covered	Animals present	Soil Movement	Evidence of other animals, insects etc.	Name of nearest perennial grass	Distance to nearest perennial grass (cm)	Seeding	Young	Mature	Distance to nearest perennial grass (<4 cm)	Width nearest perennial grass		Length nearest perennial grass (<4 cm)	Basal area nearest perennial grass (<4 cm)	
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
Total	0	0	0	0	0	0	0	0	0	0	Average (cm)	0	0	0	0	0					

Adapted from Holistic Management® & LFA by Graeme Hand

38

Decomposing vs Raw Litter



Decomposing litter on the left

39



Land Monitoring and Corrective Action Form

Date _____

Site	Variation to Landscape Goal	Possible Cause of Variation	Possible Corrective Action	Who/When
	Bare ground between grass plants – no raw litter present	<ol style="list-style-type: none"> Litter not produced as perennial grass not fully recovered (look like an ungrazed plant and contains fresh litter) before grazing i.e. recovers too short for growth rate. Animals picking up litter as not being moved on gut fill. 	<ol style="list-style-type: none"> Check increasing recovery between grazing's in a practice area. Usual cause is overstocked for seasonal growth. Determine where planning/ enterprise design has failed. Adjust stocking rate Watch animals grazing to confirm. Usual cause is overstocked for seasonal growth. Determine where planning/ enterprise design has failed. Adjust stocking rate 	
	Raw litter present but not composting/ decomposing	<ol style="list-style-type: none"> Litter not in contact with soil surface and not available to soil life. 	<ol style="list-style-type: none"> Check increasing animal impact – confirm in trail area. Usual cause is low stock density or moving animals on too fast. Check animals are moved on gut fill. 	
	Perennial grass spacing increasing. Annual forbs and grasses increasing	<ol style="list-style-type: none"> Perennial grass dying from recovery too short 	<ol style="list-style-type: none"> Check increasing recovery – confirm in practice area. Usual cause is overstocked for seasonal growth. Determine where planning/ enterprise design has failed. Adjust stocking rate 	

1 © Graeme Hand May not be copied or distributed without prior permission E: graemehand9@gmail.com

40



Land Monitoring and Corrective Action Form (cont.)

Date _____

Site	Variation to Landscape Goal	Possible Cause of Variation	Possible Corrective Action	Who/When
	Seedlings not present	<ol style="list-style-type: none"> Lack of animal impact/ disturbance to initiate germination of better perennial grasses. Lack of perennial grass recovery 	<ol style="list-style-type: none"> Check increasing animal impact in a smaller paddock or changing animal behaviour. Check if seedlings present before grazing. If present and not establishing increase recovery. Usual cause is overstocked for seasonal growth. Determine where planning/ enterprise design has failed. Adjust stocking rate 	
	Decline in better perennial grasses	<ol style="list-style-type: none"> Low utilisation and/ or lack of animal impact/ disturbance to initiate germination of better perennial grasses. 	<ol style="list-style-type: none"> Check increasing utilisation in a smaller paddock Usual cause is low stock density or moving animals on too fast (light graze). Check animals are moved on gut fill. 	
	Grey oxidising grass noted as increasing	<ol style="list-style-type: none"> Perennial grass litter not cycling Paddock too large to allow even grazing 	<ol style="list-style-type: none"> Check increasing animal impact through a smaller paddock or changing animal behaviour Check if smaller paddocks have grey oxidising grass – confirm in a practice area. Plan required for profitable development of smaller paddocks 	
	Woody plants noted as increasing	<ol style="list-style-type: none"> Perennial grass dying from not having growth points cleared. Paddock too large to allow even grazing 	<ol style="list-style-type: none"> Check increasing animal impact through a smaller paddock or changing animal behaviour Check if smaller paddocks stops woody seedlings germinating– confirm in a practice area 	

2 © Graeme Hand May not be copied or distributed without prior permission E: graemehand9@gmail.com

41

Successful Design to reduce risk

1. Debt

- 20% debt on the land & no debt on cows

2. Seasonal

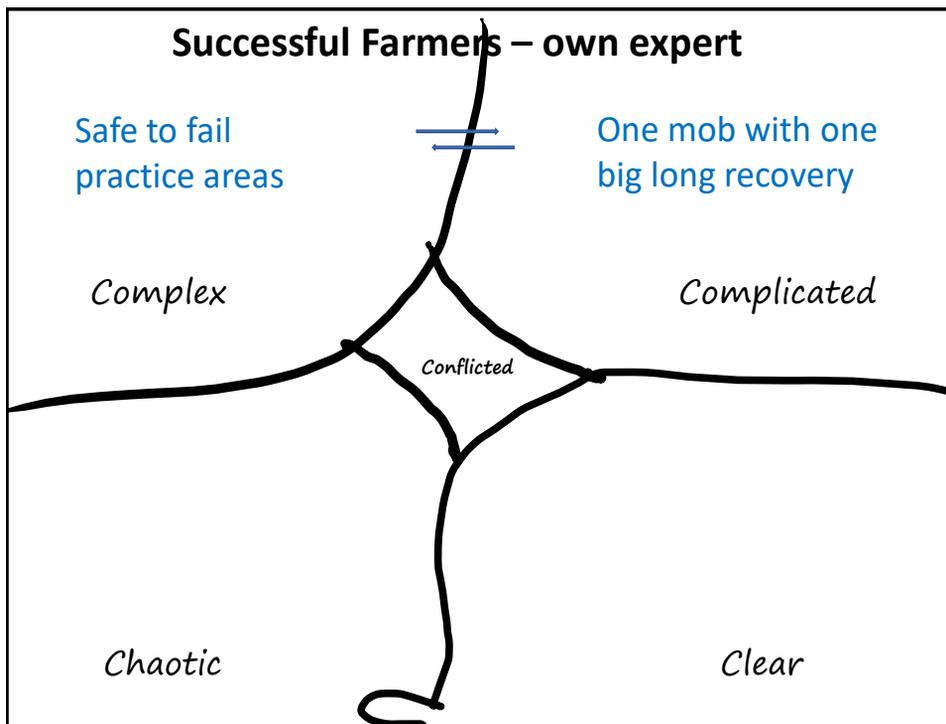
- 6-12 month recoveries – one mob

3. Market Price

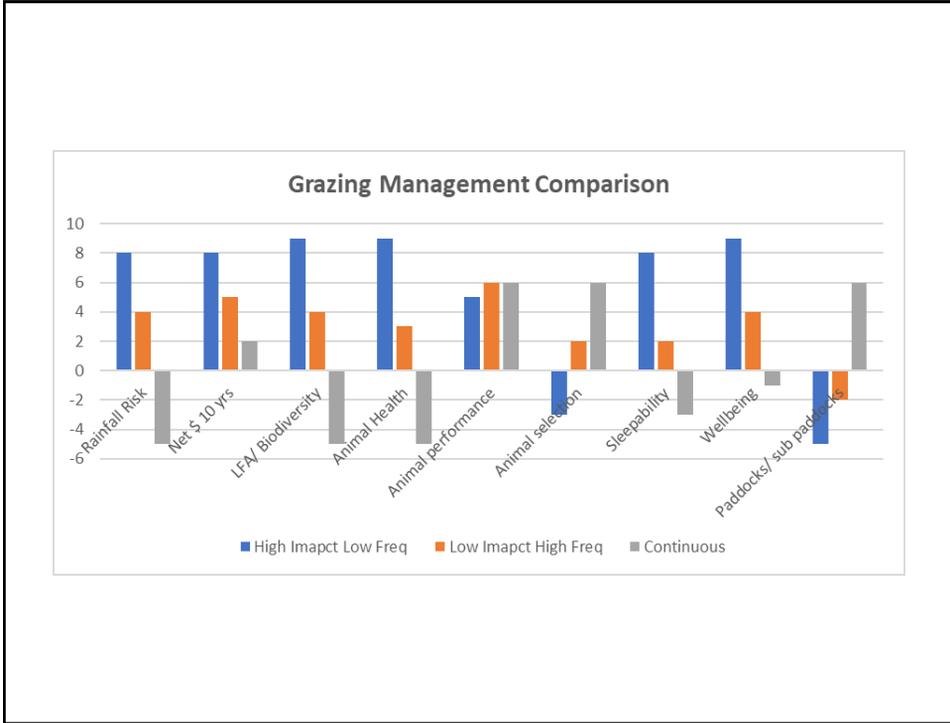
- Expenses < 10% of selling price

42

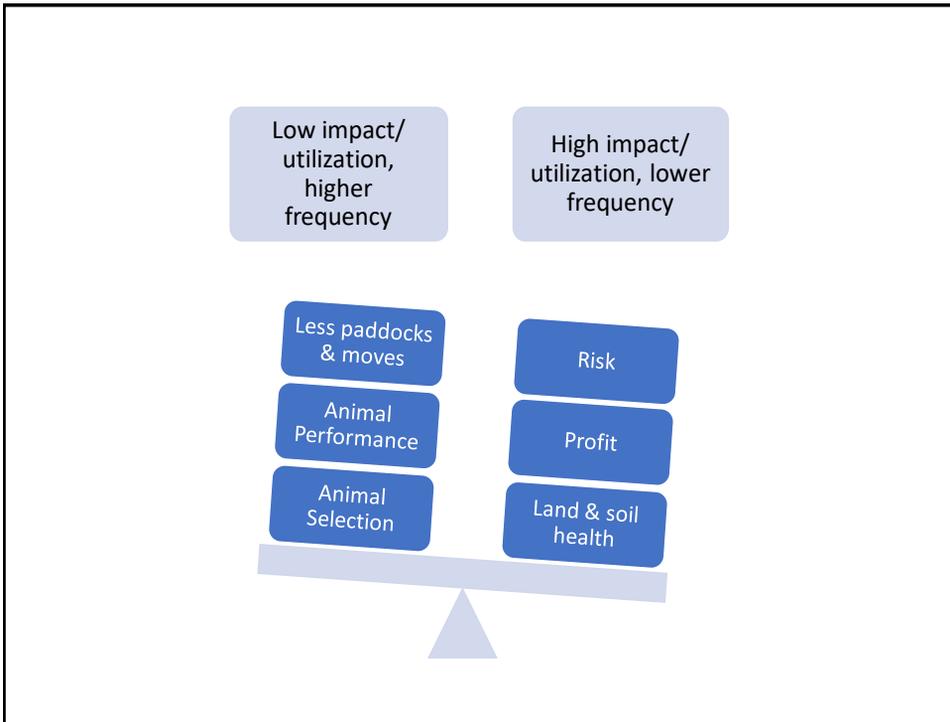
42



43

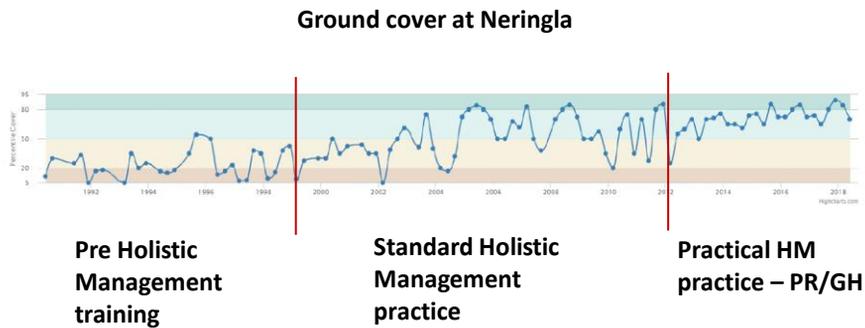


44



45

Evidence – FarmMap 4D



46

Agenda

1. Our story
2. Level of change and risk
3. Complexity
4. Landscape Function
5. Description of planned grazing extremes – forced variation, recovery, stock density and plant utilization
6. What works in practice
7. **Coaching programme**
8. Q&A

47

47



Weekly Planned Grazing Corrective Action Form (COW MOB)

Date 27th March 2020

Item	Variation to Plan (increasing/ okay/ decreasing)	Cause of Variation	Action to return to plan	Who
Recovery time	Ok	conservative estimates + plenty of summer rain and mild conditions + understocked	Recovery estimates have exceeded 365 days - focussing on building herd numbers internally	Alex

48



Perennial grass recovery	Ok	recovery times have increased leading to better recovery for grass species	Focus on slowing cow moves and trampling litter, clearing growth points and high utilisation	Alex
Litter decomposition	Ok	Milder weather, good rain, increased fungal activity	Aim to increase trampling, maintain ground cover by shifting on gut fill	Alex
Gut fill Scores	Decreasing	Higher energy inputs needed during calving?	Observe and move when 20-40% are at gut fill 4	Alex
Dung Scores	Ok	N/A	No Action	Alex
Contentment Scores	Ok	N/A	No Action	Alex
Drinking Scores	Ok	N/A	No Action	Alex

Adapted from Holistic Management® by Graeme Hand

49

Coaching programme

Main **benefits** of the coaching programme

- Dramatically improve your plant, soil & animal health
- Significantly increase your bank balance
- Reduce stress and unintended consequences
- Money back guarantee

50

50

Coaching programme

Main **features** of the coaching programme

- Includes small group and one on one webinars, email and phone calls to address your individual barriers to success
- Simple “safe to fail” plans, based on proven principles, that address your barriers.

51

51

Coaching programme

Main **features** of the coaching programme

Weaver's, Balmoral, Victoria.

"Without Graeme Hand, we couldn't have done it".

Lyn Heenan, Stoneleigh, Victoria

"I was rolling drunk with happiness at how this paddock has shifted into productivity. Here are before and after photos".



52

52

Coaching programme

Main **features** of the coaching programme

Read's, Perry Bridge, Victoria.

"We commenced with Cell Grazing with RCS/Principle Focus in 2002 and Holistic Management in 2009 with Graeme Hand. It wasn't till we practiced HM with Graeme that we realized we were not allowing Sufficient Recovery Time for the perennial grasses for our pastures to be Regenerative. Sustainable is not good enough!"



53

Coaching programme

Free one on one **consult**

- If you would like to find out if a coaching programme can work for you we offer a free one on one consult
- 30 minutes.
- Lots of questions and ideas on how to improve your business
- There is no charge or expectation that you will buy anything.

54

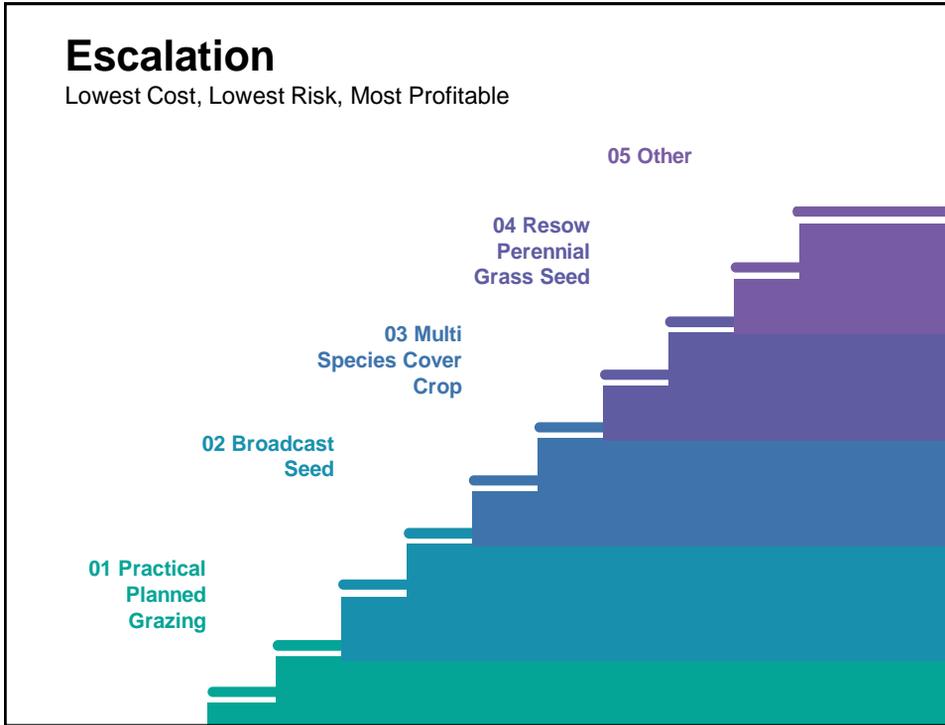
54

Agenda

1. Our story
2. Level of change and risk
3. Complexity
4. Landscape Function
5. Description of planned grazing extremes – forced variation, recovery, stock density and plant utilization
6. What works in practice
7. Coaching programme
8. **Q&A**

55

55



56



Designing Regenerative Grazing

That works in practice

Graeme Hand

graemehand9@gmail.com

0418532130



57