Annual Pasture Establishment & Management

Please note: The following slides are general in nature for demonstration and discussion purposes. For further research and information seek the original sources from DPIRD, Murdoch University, University of WA, MLA, GRDC etc.

Principles and practices to establish, improve and maintain annual pastures

Establishing, Improving & Maintaining Annual Pastures

Rotation

Species composition

Sowing Date

Species

Variety

Inoculants

Break of Season

Pasture Density

Nutrition

Pre-sowing Knockdown

Root Disease

Insect Control

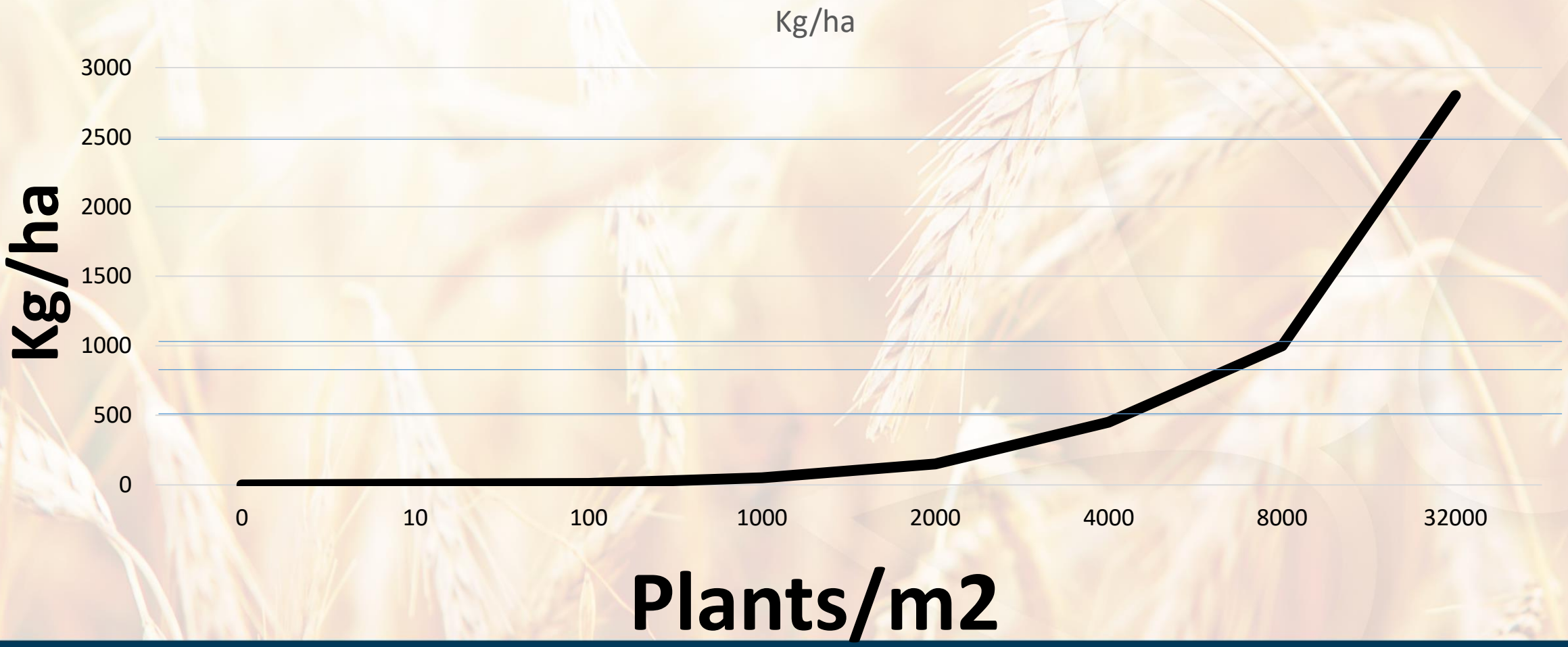
Manipulation

Pasture Density

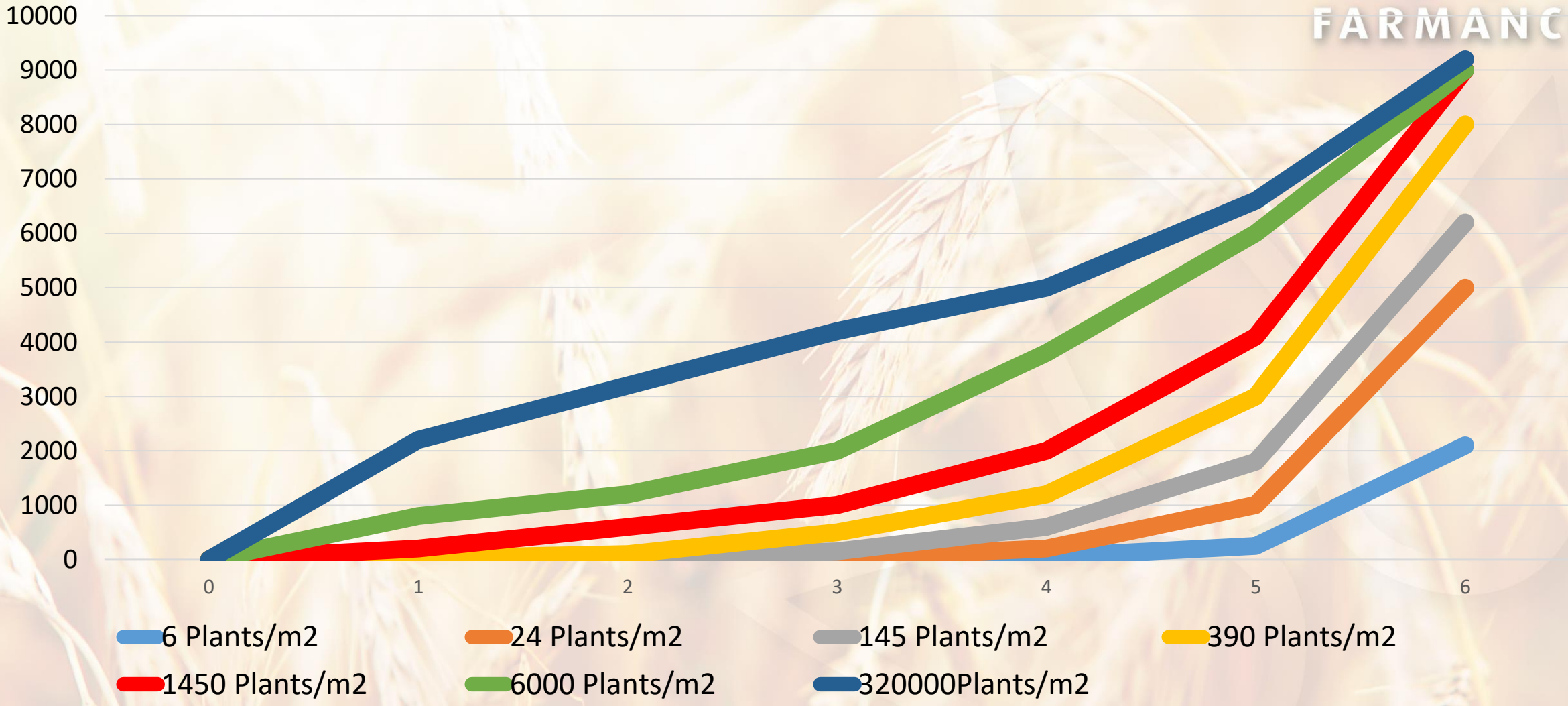
Pasture Density

Pasture Density

Pasture Density & Dry Matter Production **62 Days** After Germination With No Grazing (Donald 1951!)



Density of Un-grazed Sub-clover and DM t/ha Production for 6 Months (Donald 1951)



Pasture Density

	Self Regenerating Annual Pasture	Sown Ryegrass & Grazing Oats
Carrying Capacity	0.4 DSE/ha	7.2 DSE/ha
Income		
Wool	$9.74/ha	173.80/ha
Meat	$8.84/ha	$159.08/ha
Total Income	**$18.58/ha**	**$332.88/ha**
Costs		
Sheep	$5.87/ha	$104.68/ha
Pasture & Fencing	$10.00/ha	$130.86/ha
Total Costs	**$15.87/ha**	**$235.54/ha**
Net Income	**$2.71/ha**	**$97.34/ha**

MLA Binnu 2008

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Improving pastures

- Things to think about:
  - New varieties – Hard Seeded varities
  - New rhizobium – New strains of Rhizobia 2006
  - Species composition – add in cereals for early production
  - Dryland Legume Pasture Systems project

Improving pastures

- Sub-Clover varieties
  - Tammin (released in 2017)
  - Suited to rainfall regions 300mm – 450mm
  - RLEM seedling resistance
  - In DPIRD trials vs Dalkeith
    - 7% higher autumn biomass
    - 2% higher winter biomass
    - 17% higher spring biomass
  - Hardseeded

(Source: DPIRD)

Improving pastures - Tammin

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Table 1. Key varietal characteristics of Tammin®, Forbes® and other early flowering sub clover cultivars.

Cultivar	Hardseededness (% hard seeds after summer-autumn)	Flowering time (days from early May sowing in Perth)	RLEM damage (% cotyledon silvering)	Formononetin (% of dry matter)	Clover scorch (HR = highly resistant HS = highly susceptible)
Tammin®	51.3	88	6.1	0.00	HS
Forbes®	32.7	101	6.0	0.00	HS
Urana®	24.3	105	25.4	0.00	HS
Nungarin	23.7	77	32.9	0.05	HS
Izmir®	21.7	80	27.9	0.05	HS
Geraldton	17.3	88	40.8	1.10	HS
Dalkeith	16.3	96	39.2	0.00	HS
Losa®	9.3	95	28.3	0.05	HS
Lsd (P=0.05)	5.2	2.1	6.3	0.04	

Source: Phil Nicholls, DPIRD/UWA)

Improving pastures – hard seededness

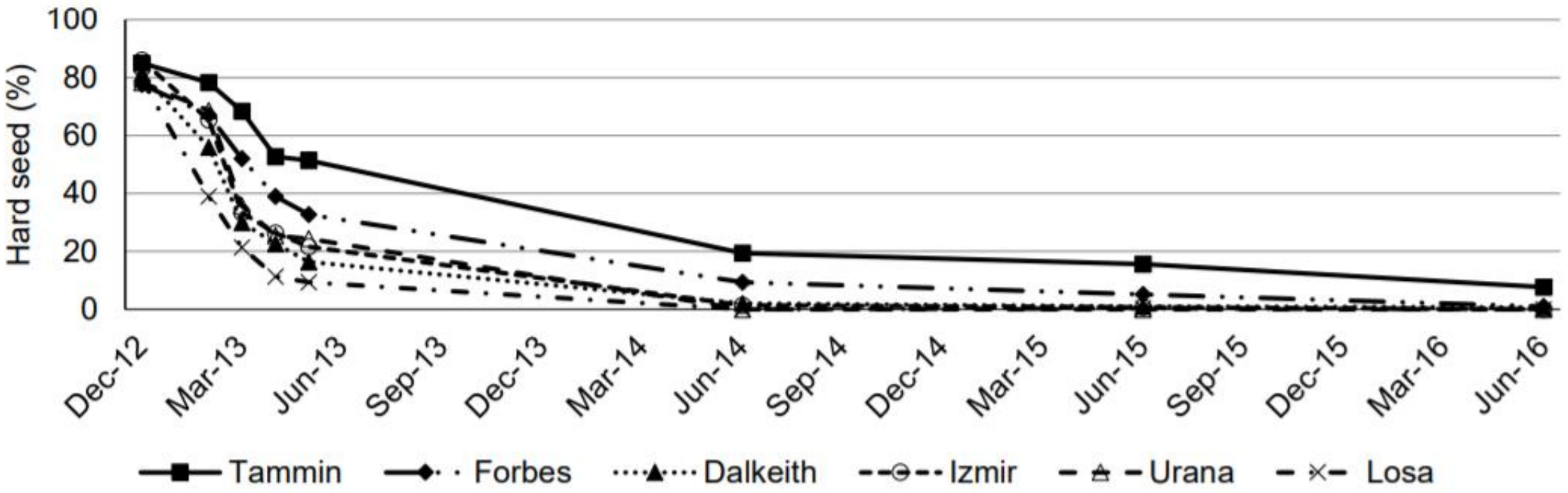

Figure 1. Softening of hard seeds over four summer-autumn periods on the soil surface at South Perth of Tammin, Forbes and other early flowering cultivars.

Source: Phil Nicholls, DPIRD/UWA)

Improving pastures

- New Variety called FRAN2O
- French Serradella similar to Margerita
- Shorter season – 2 weeks earlier to flower
- Same hard seededness
- Suited to Medium – Low rainfall regions
- Seed is 25% larger than Margerita

Source: DPIRD

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Improving pastures

- How is your Rhizobia?

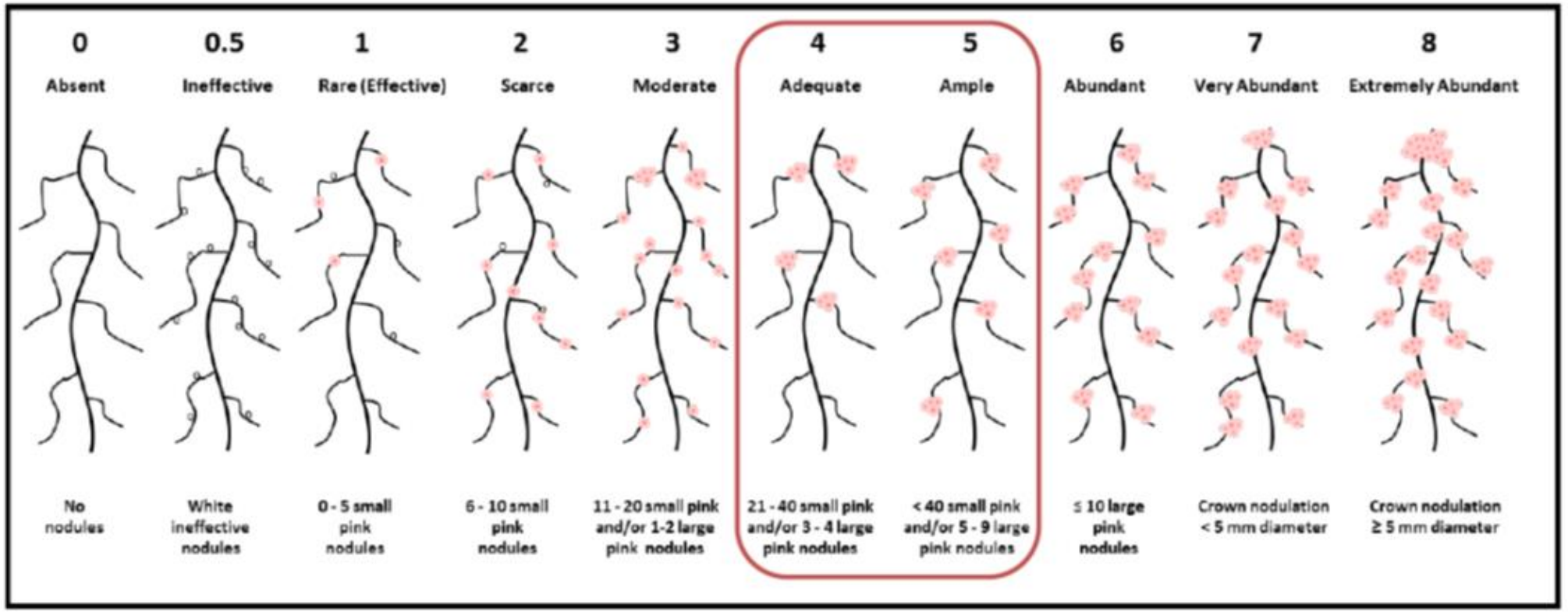


Figure 1): What heathy legume roots nodules should look like once dug up and washed. Source Working with Rhizobia (Howieson and Dilworth, 2016)

Improving pastures

- How is your Rhizobia?

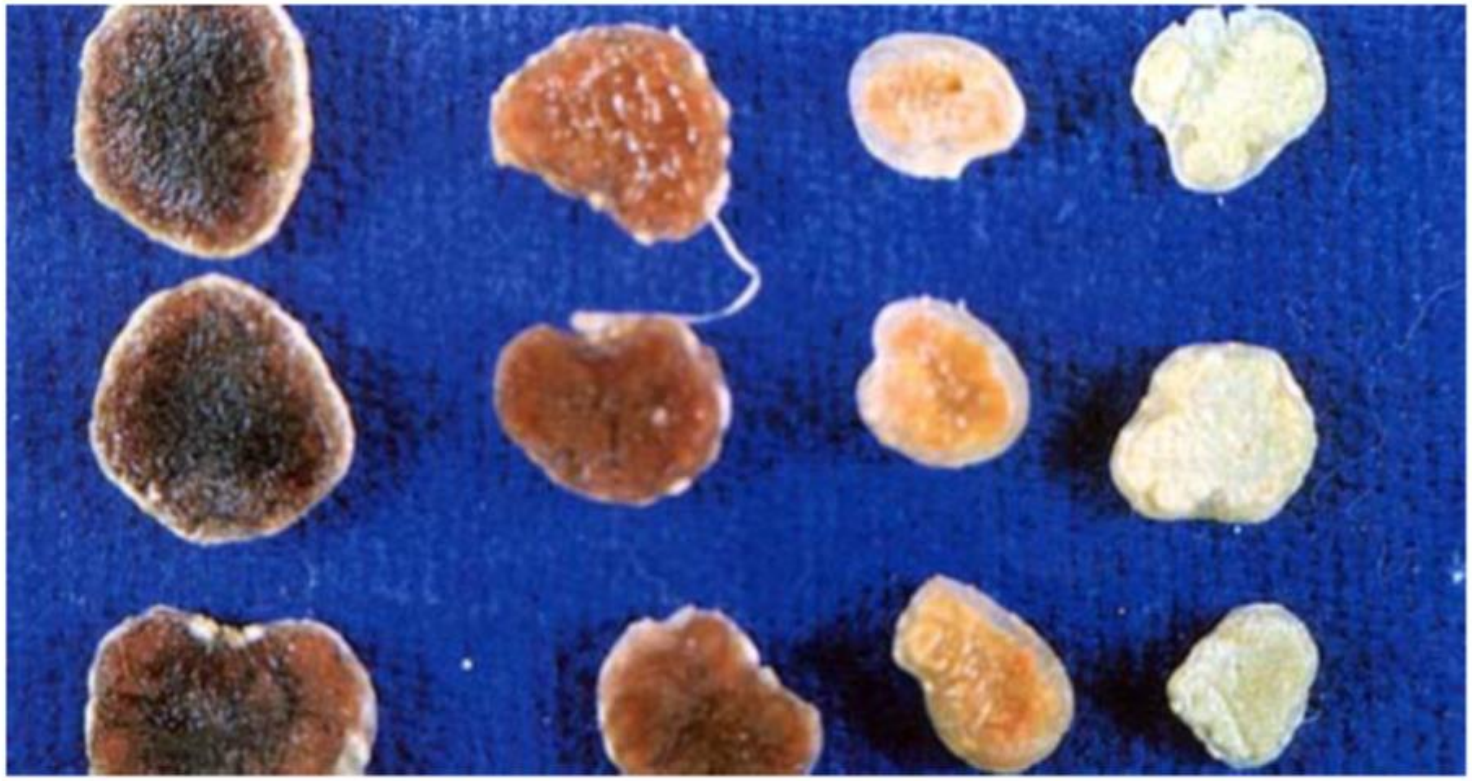
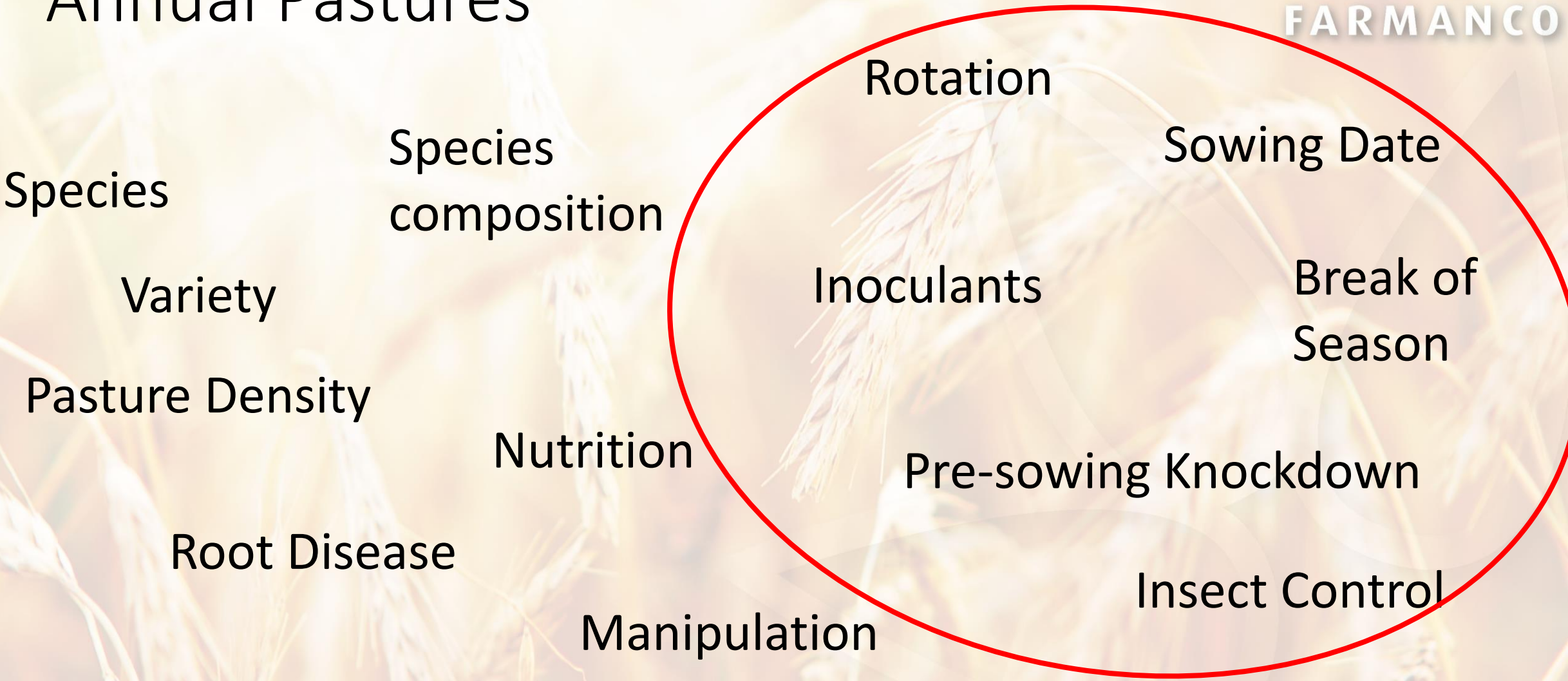


Figure 2) Nodules should show a pink/red colour once dissected.

Establishing, Improving & Maintaining Annual Pastures



Establishing pastures

- Sow a nursery to keep costs down
- Summer sowing strategy
- Sow cereals into for pasture density
  - Vigorous Barley variety – consider oats
- Knockdown and insect control

Establishing pastures

- Summer sowing hard seeded serradella and bladder clover
  - Sow unscarified pod no later than February
  - Innoculation (dry, ALOSCA) – group C for bladder clover, serradella same as lupin (G/S)
  - Spinnaker PSPE
  - Raptor in season for BLW
  - Grass spray as necessary

Establishing pastures

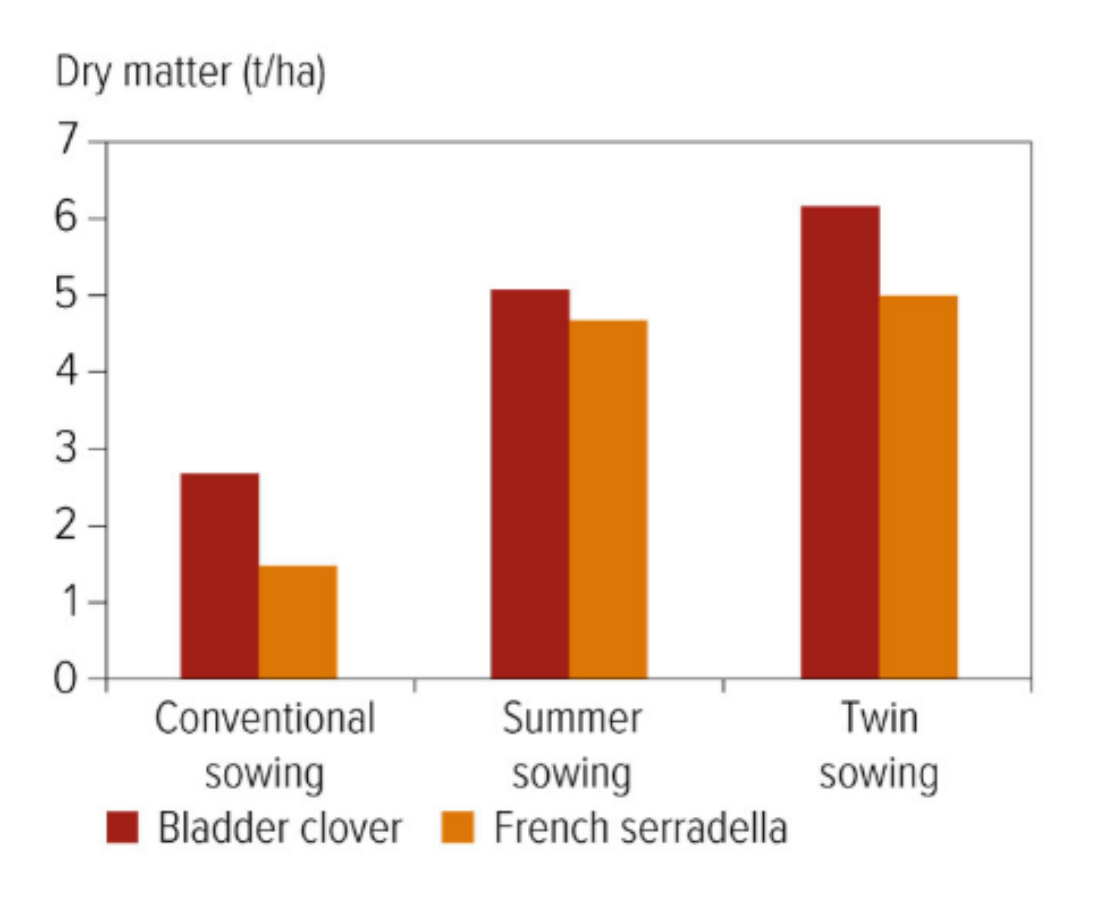


Figure 1 Dry matter production of Bartolo bladder clover and Margurita French serradella – conventional, summer and twin sown at Brookton, WA, in 2015. Source: GRDC

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Species composition

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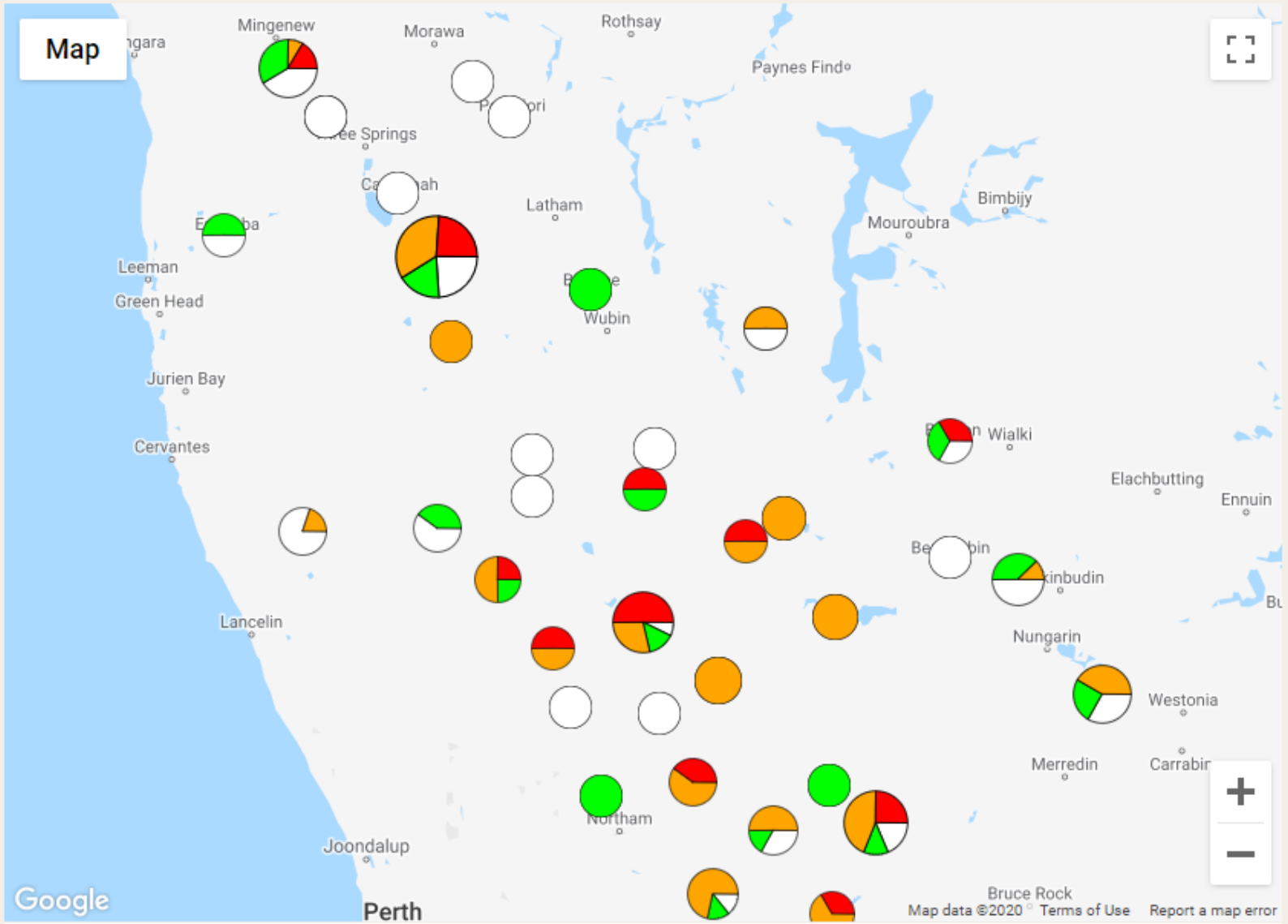
Manipulation

Maintain your Pasture

- Things to remember when maintaining pastures:
  - Like your cropped paddocks monitor soil health and nutrition
  - Root disease – Nematodes?
  - Pasture Manipulation
  - Stay away from SU’s

Disease Risk | Pratylenchus neglectus | 2016

PIE SIZE:



Low | Medium | High | Below Detection Limit

PREDICTA B
DNA Soilborne disease tests

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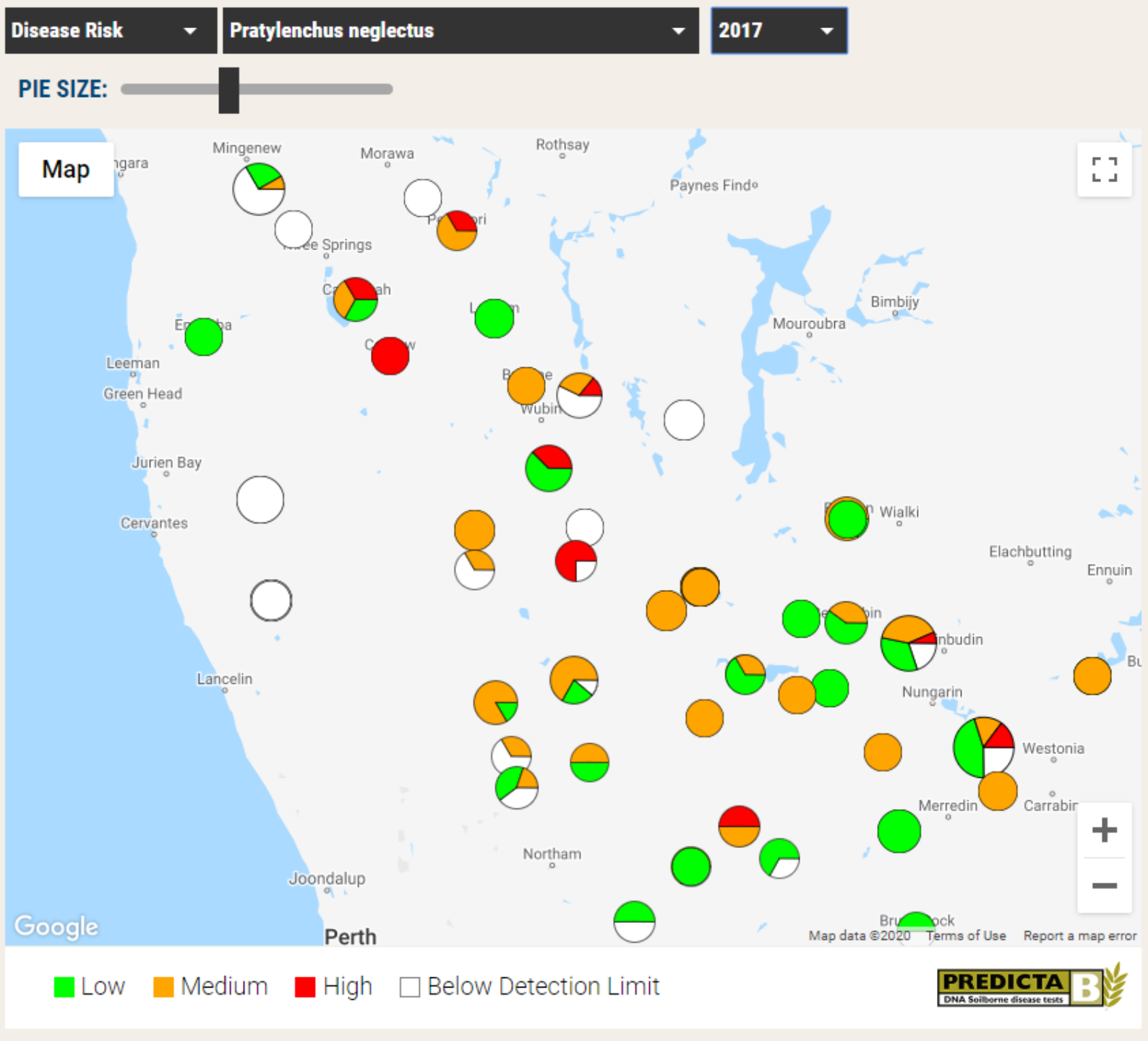

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Disease Risk | Pratylenchus neglectus | 2018

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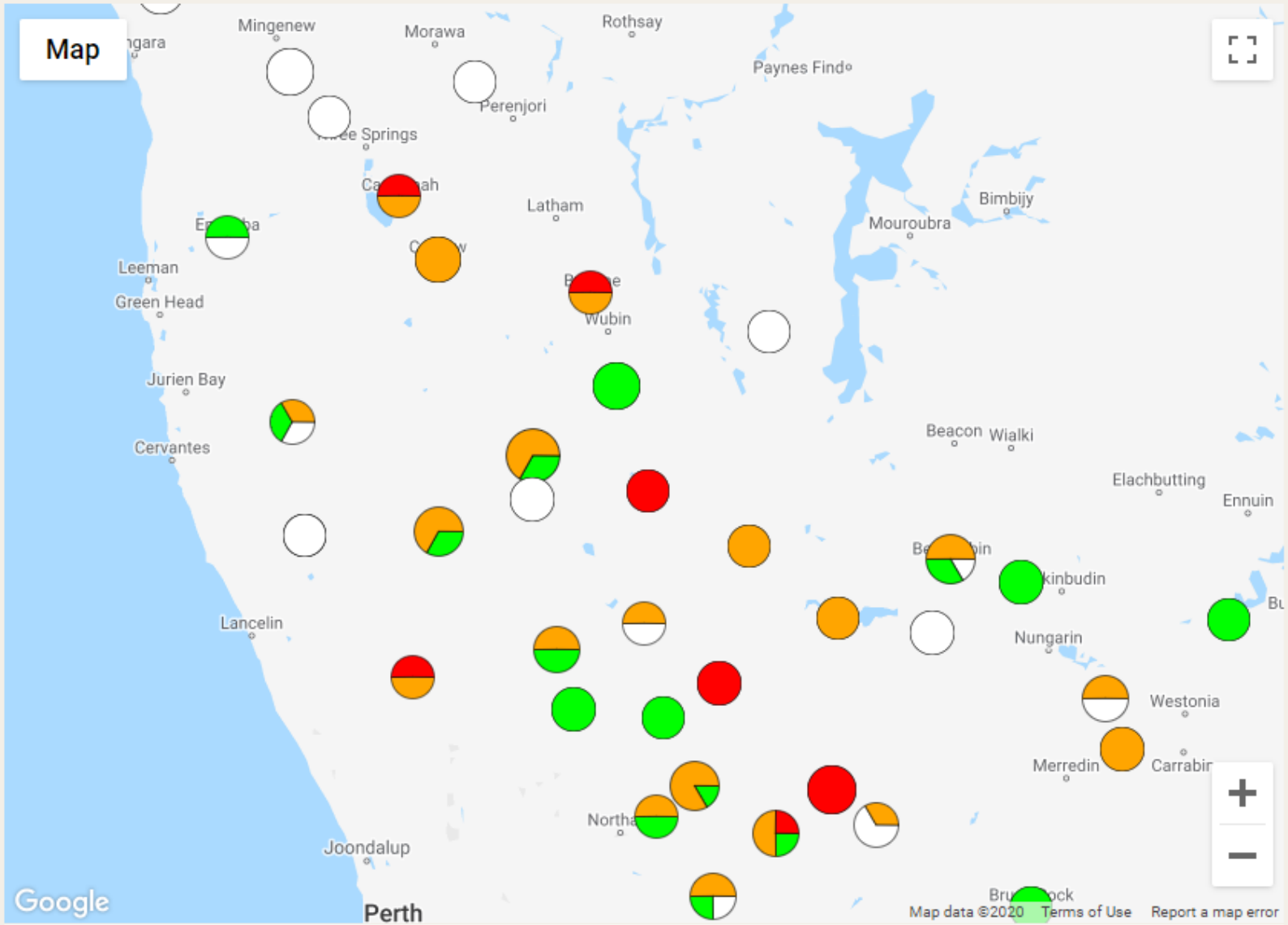

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Disease Risk | Pratylenchus neglectus | 2019

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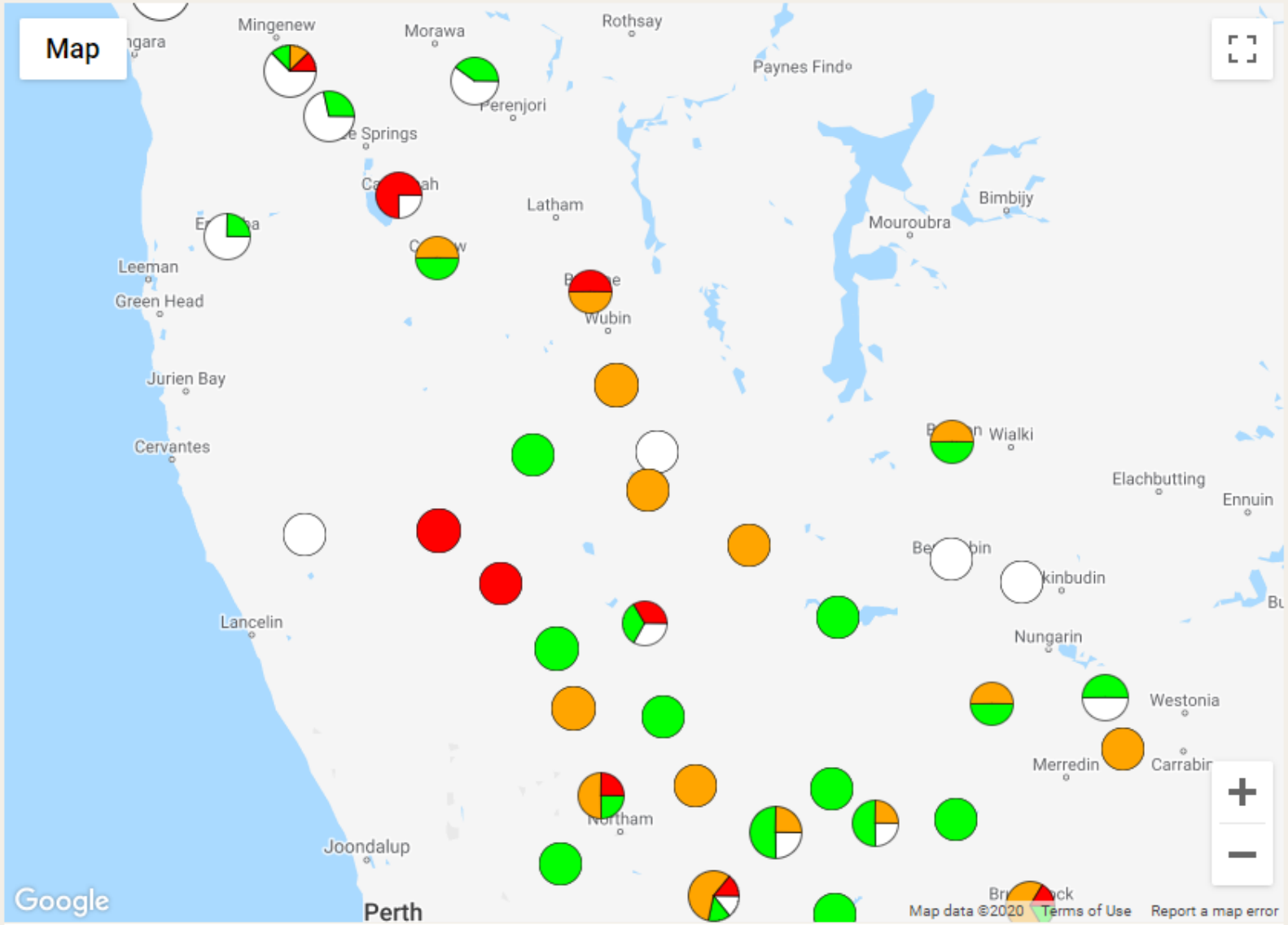

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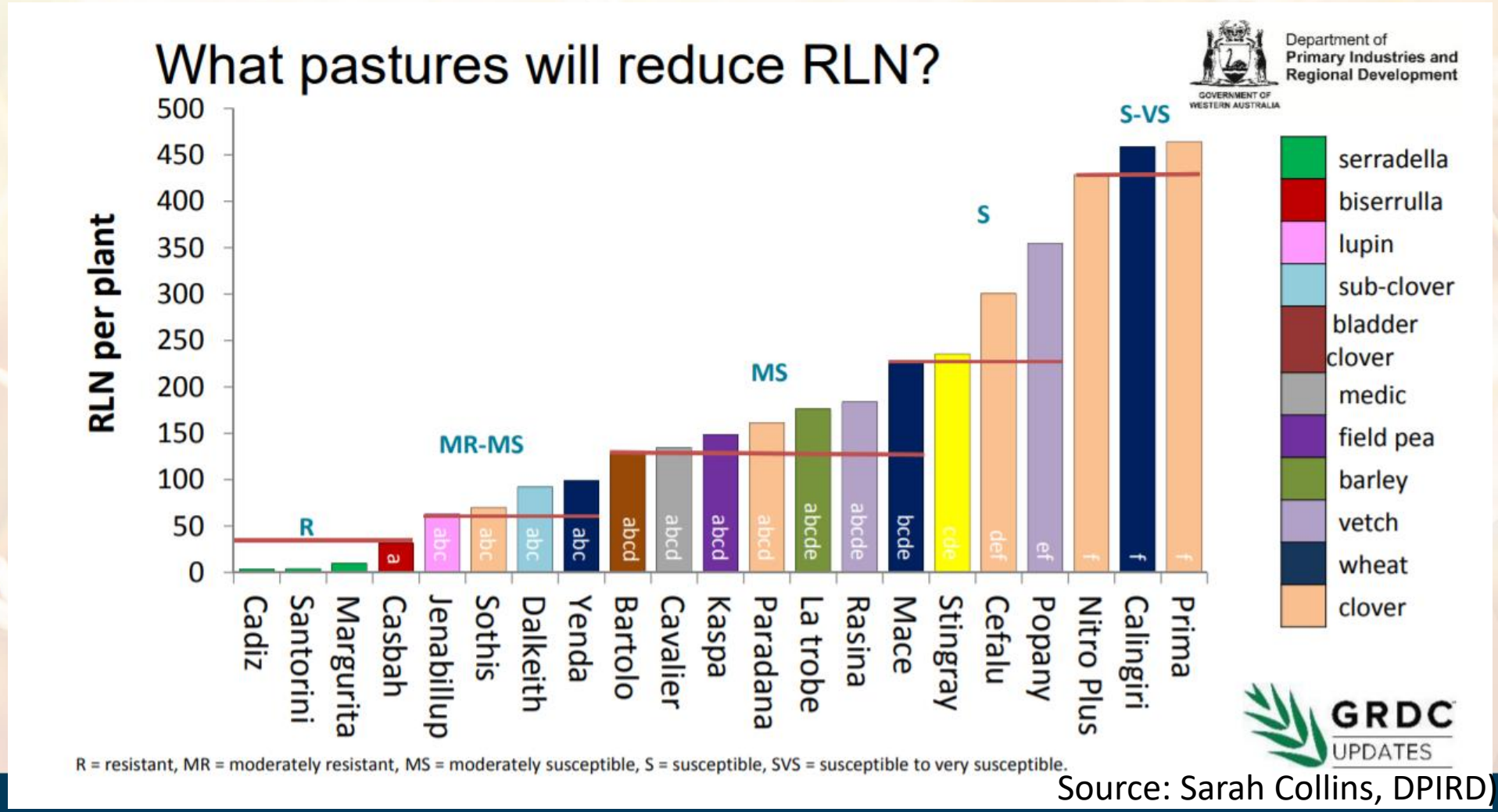
Maintain your Pasture

- Root disease – Nematodes?



Source: Sarah Collins, DPIRD)

Maintain your Pasture

- Things to remember when maintaining pastures:
- Stay away from SU's
  - And lontrel

- Pasture Manipulation
  - Some herbicides will set you back
  - Grazing Witholding Period

Triasulfuron application (18 days growth)

DAFWA Crop Pasture Group (Yates, Nutt & Loi)

3g	0.3g	0.03g	0.003g	0.0003g	control
1/10	1/100	1/1000	1/10000	1/100000 of recommended rate	

Triasulfuron application on Sub clover (18 days growth)

DAFWA Crop Pasture Group (Yates, Nutt & Loi)

Bromoxynil Products

- 8 weeks with holding for grazing or cutting for stockfeed
- Does not completely mitigate for animal dietary exposure
- Further refinement can be expected
- BEWARE old product may not have correct GWHP

WITHHOLDING PERIOD
CROP HARVEST: NOT REQUIRED WHEN USED AS DIRECTED.
GRAZING/STOCKFOOD: DO NOT GRAZE TREATED CROPS OR CUT FOR STOCKFOOD FOR 8 WEEKS AFTER APPLICATION.

Summary – Any Questions?

- Pasture Density
- Treat the first year like a crop – look after your pastures
- There are strategies to bring the cost of resowing down
- Consider the new varieties as you sow new pastures.