



Annual Pasture Establishment & Management



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Principles and practices to establish, improve and maintain annual pastures

Establishing, Improving & Maintaining Annual Pastures



Species
Variety
Pasture Density
Root Disease
Manipulation

Species composition
Nutrition

Rotation
Inoculants
Pre-sowing Knockdown

Sowing Date
Break of Season
Insect Control



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Pasture Density

Pasture Density



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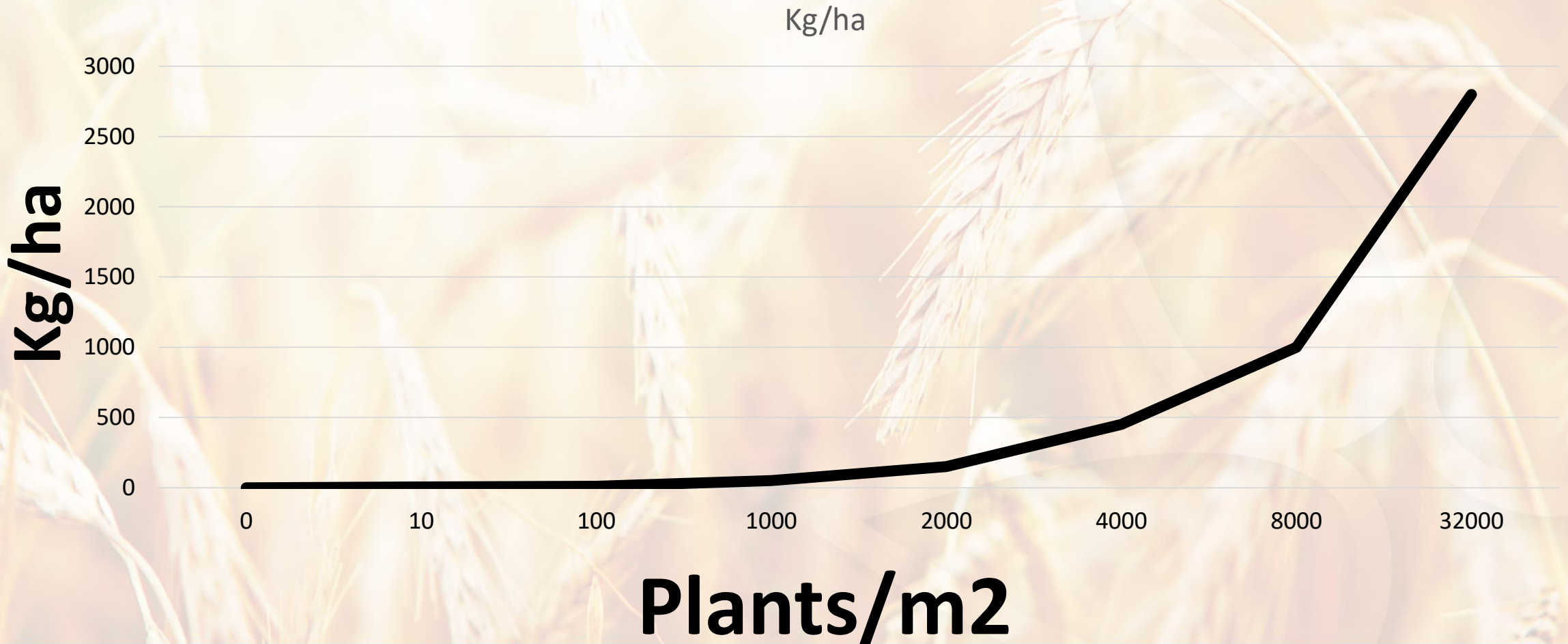
Pasture Density



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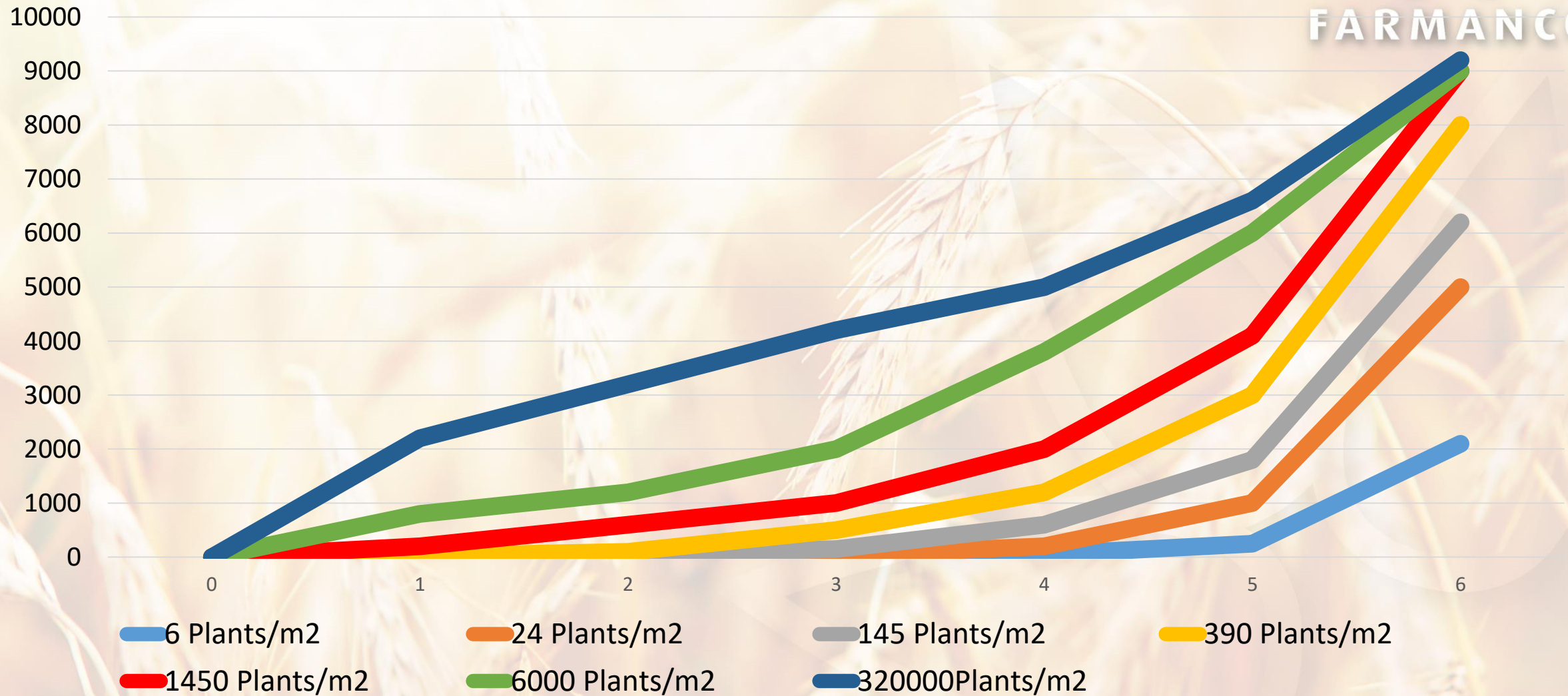
Pasture Density & Dry Matter Production 62 Days After Germination With No Grazing (Donald 1951!)



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



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Pasture Density



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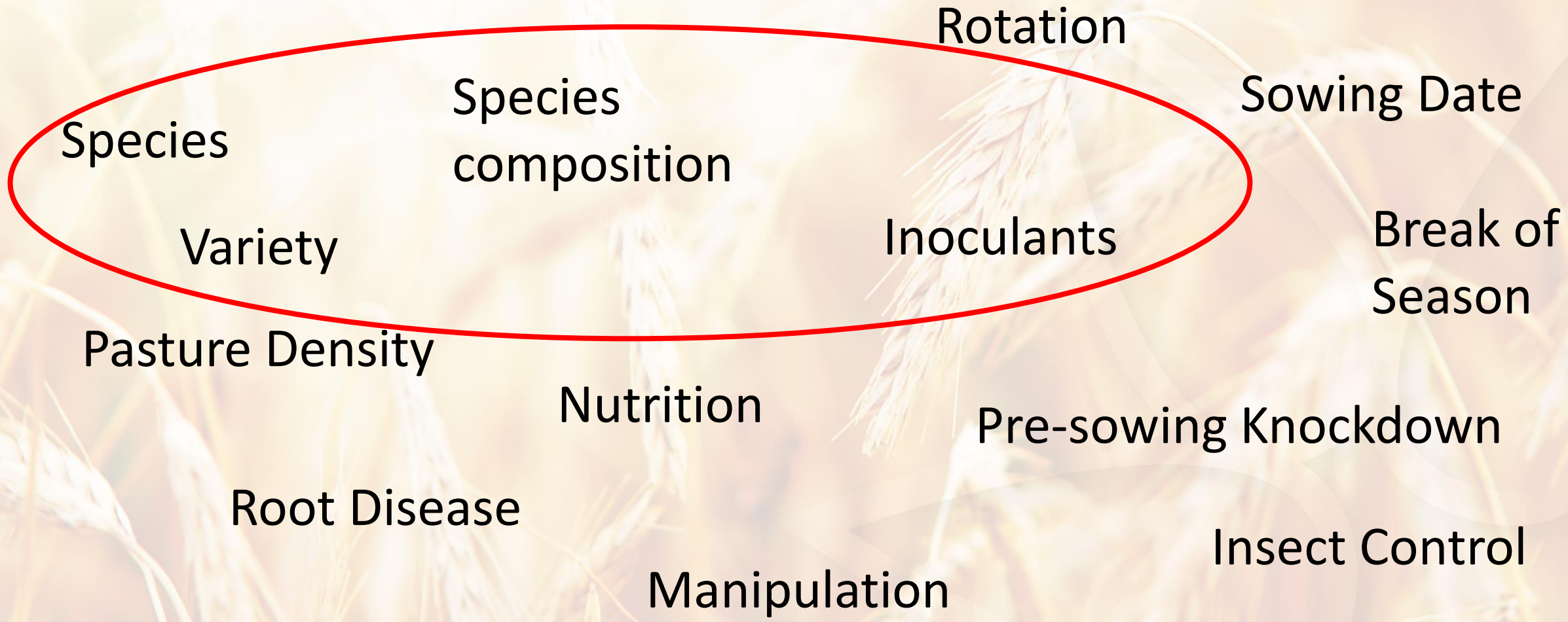
	Self Regenerating Annual Pasture	Sown Ryegrass & Grazing Oats
Carrying Capacity	0.4 DSE/ha	7.2 DSE/ha
Income		
Wool	\$9.74/ha	173.80/ha
Meat	\$8.84/ha	\$159.08/ha
Total Income	\$18.58/ha	\$332.88/ha
Costs		
Sheep	\$5.87/ha	\$104.68/ha
Pasture & Fencing	\$10.00/ha	\$130.86/ha
Total Costs	\$15.87/ha	\$235.54/ha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

MLA Binu 2008

Establishing, Improving & Maintaining Annual Pastures



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Improving pastures

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



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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)



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Improving pastures - Tammin

Table 1. Key varietal characteristics of Tammin^(b), Forbes^(b) 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 ^(b)	51.3	88	6.1	0.00	HS
Forbes ^(b)	32.7	101	6.0	0.00	HS
Urana ^(b)	24.3	105	25.4	0.00	HS
Nungarin	23.7	77	32.9	0.05	HS
Izmir ^(b)	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 ^(b)	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



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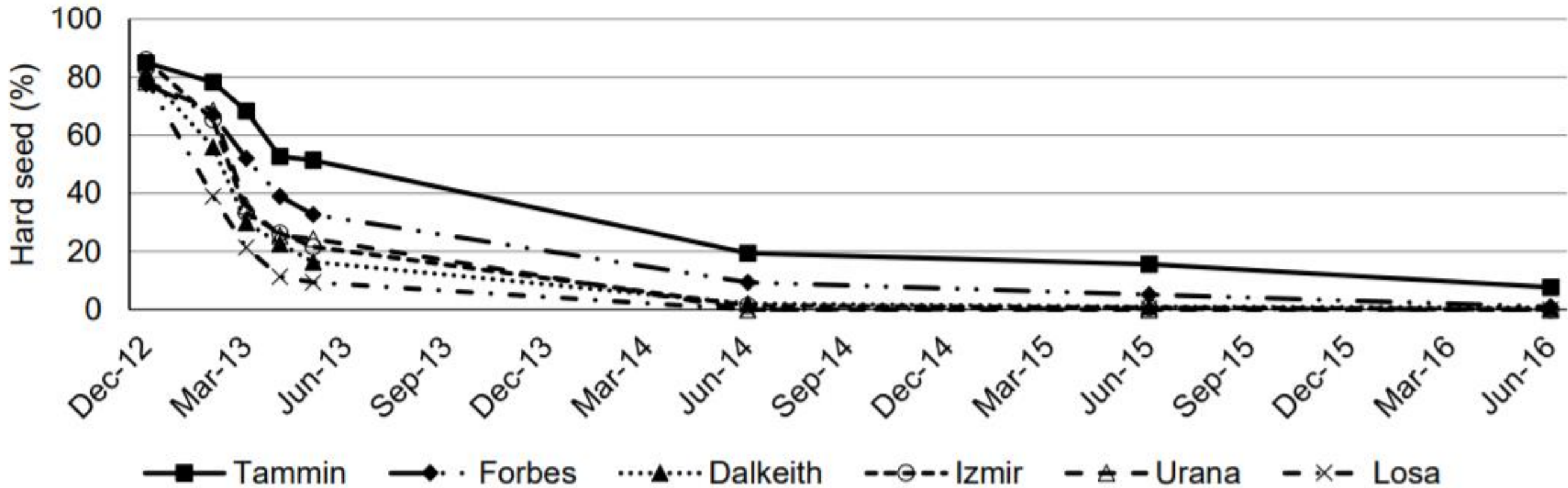


Figure 1. Softening of hard seeds over four summer-autumn periods on the soil surface at South Perth of Tammin^(b), Forbes^(b) and other early flowering cultivars.

Source: Phil Nicholls, DPIRD/UWA)



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Improving pastures

- New Variety called FRAN20
- 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

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Improving pastures

- How is your Rhizobia?

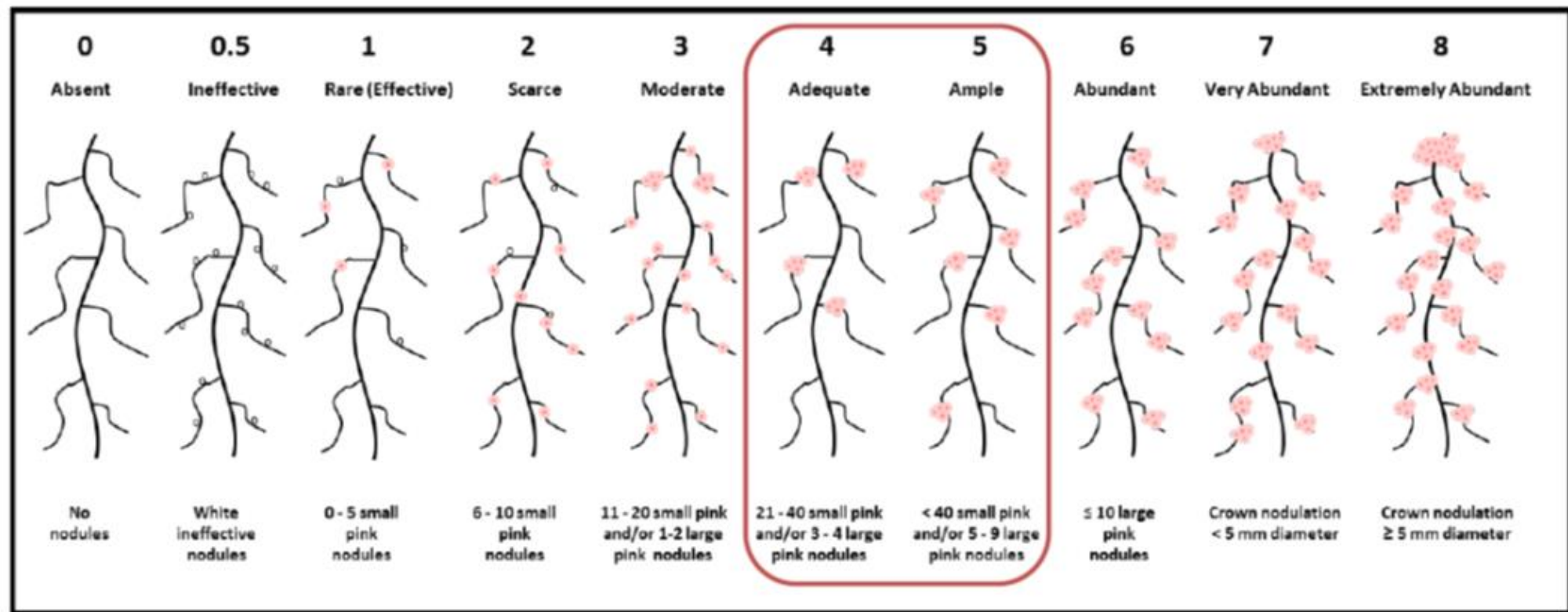


Figure 1): What heathy legume roots nodules should look like once dug up and washed. Source Working with Rhizobia (Howieson and Dilworth, 2016)



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Improving pastures

- How is your Rhizobia?



Old Nodule

Active
Nodule

Inactive
nodule

Source: Ron Yates, DAFWA

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

Establishing, Improving & Maintaining Annual Pastures



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Species

Species composition

Variety

Rotation

Sowing Date

Pasture Density

Inoculants

Break of Season

Nutrition

Pre-sowing Knockdown

Root Disease

Insect Control

Manipulation



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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



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Establishing pastures

- Summer sowing hard seeded serradella and bladder clover
 - Sow unscarified pod no later than February
 - Inoculation (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



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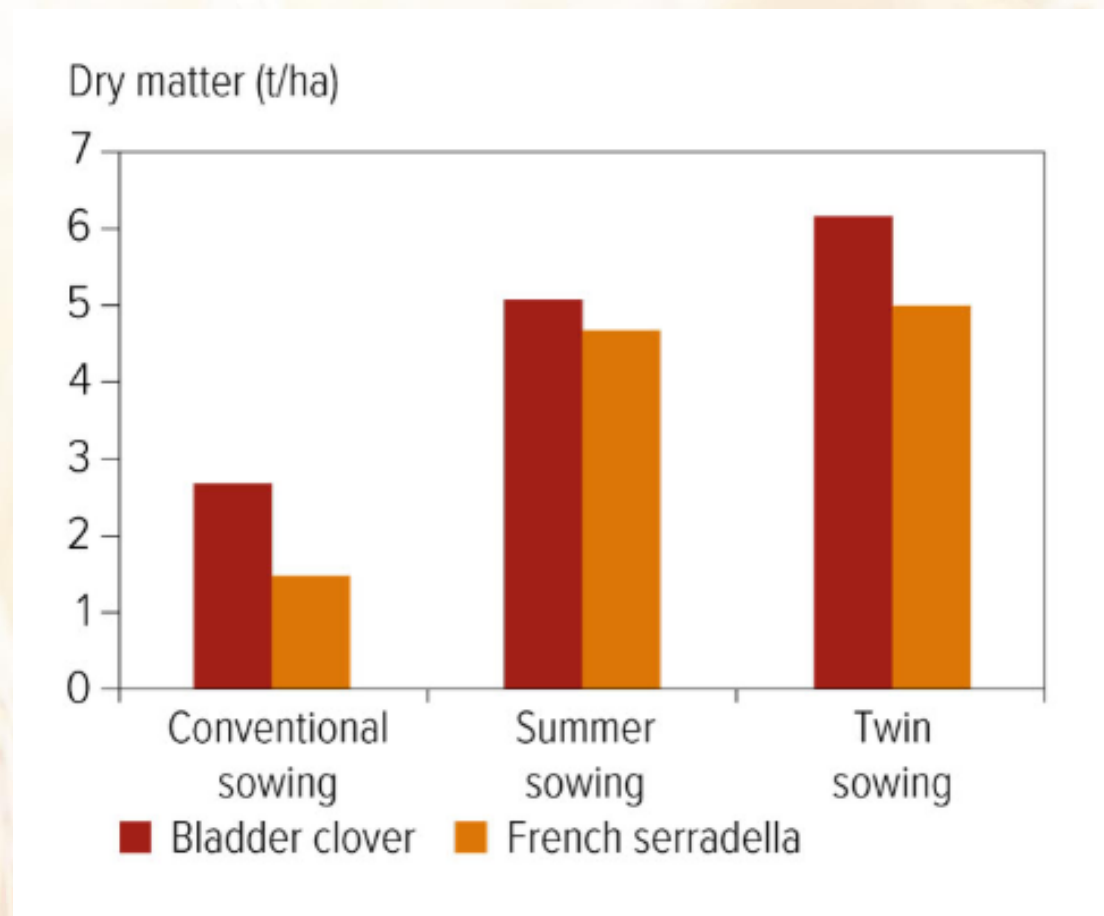
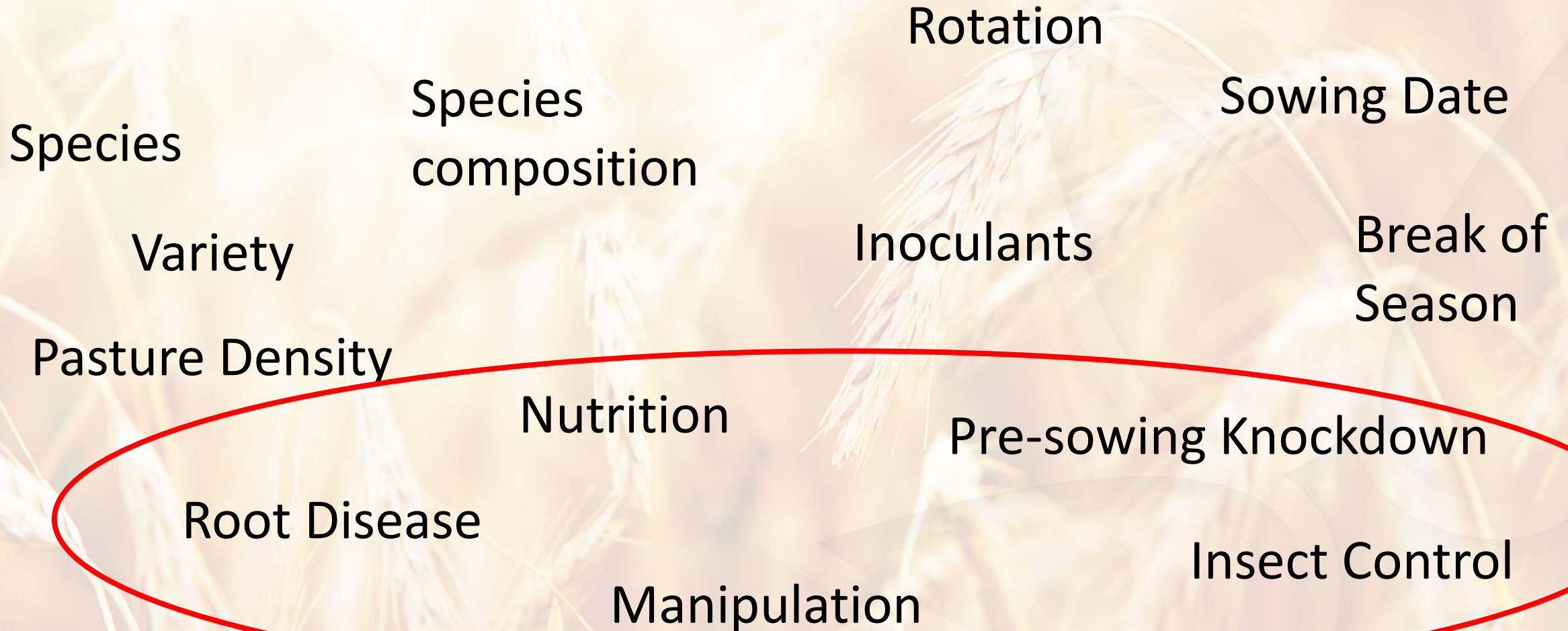


Figure 1 Dry matter production of Bartolo bladder clover and Margurita French serradella – conventional, summer and twin sown at Brookton, WA, in 2015. Source: GRDC

Establishing, Improving & Maintaining Annual Pastures





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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

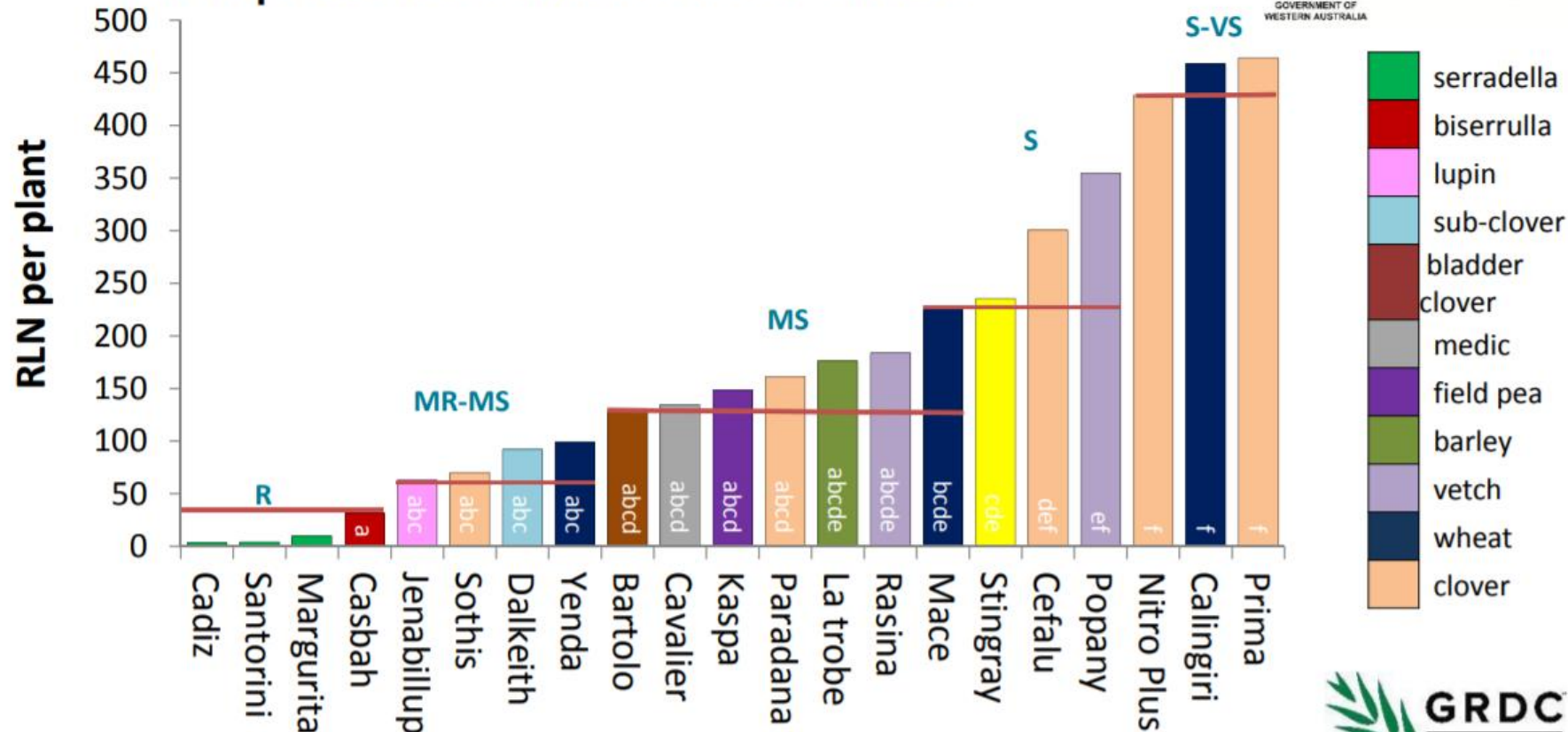
Maintain your Pasture

- Root disease – Nematodes?



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What pastures will reduce RLN?



R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible, SVS = susceptible to very susceptible.



Source: Sarah Collins, DPIRD



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Maintain your Pasture

- Things to remember when maintaining pastures:
- Stay away from SU's
 - And Iontrel
- Pasture Manipulation
 - Some herbicides will set you back
 - Grazing Withholding Period

Triasulfuron application (18 days growth)



DAFWA Crop Pasture Group (Yates, Nutt & Loi)

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3g

0.3g

0.03g

0.003g

0.0003g

control

1/10

1/100

1/1000

1/10000

1/100000 of recommended rate



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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)



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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.



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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.