

# Fertiliser – How much is enough?

Sue Briggs – DEPI Rutherglen



Australian Government

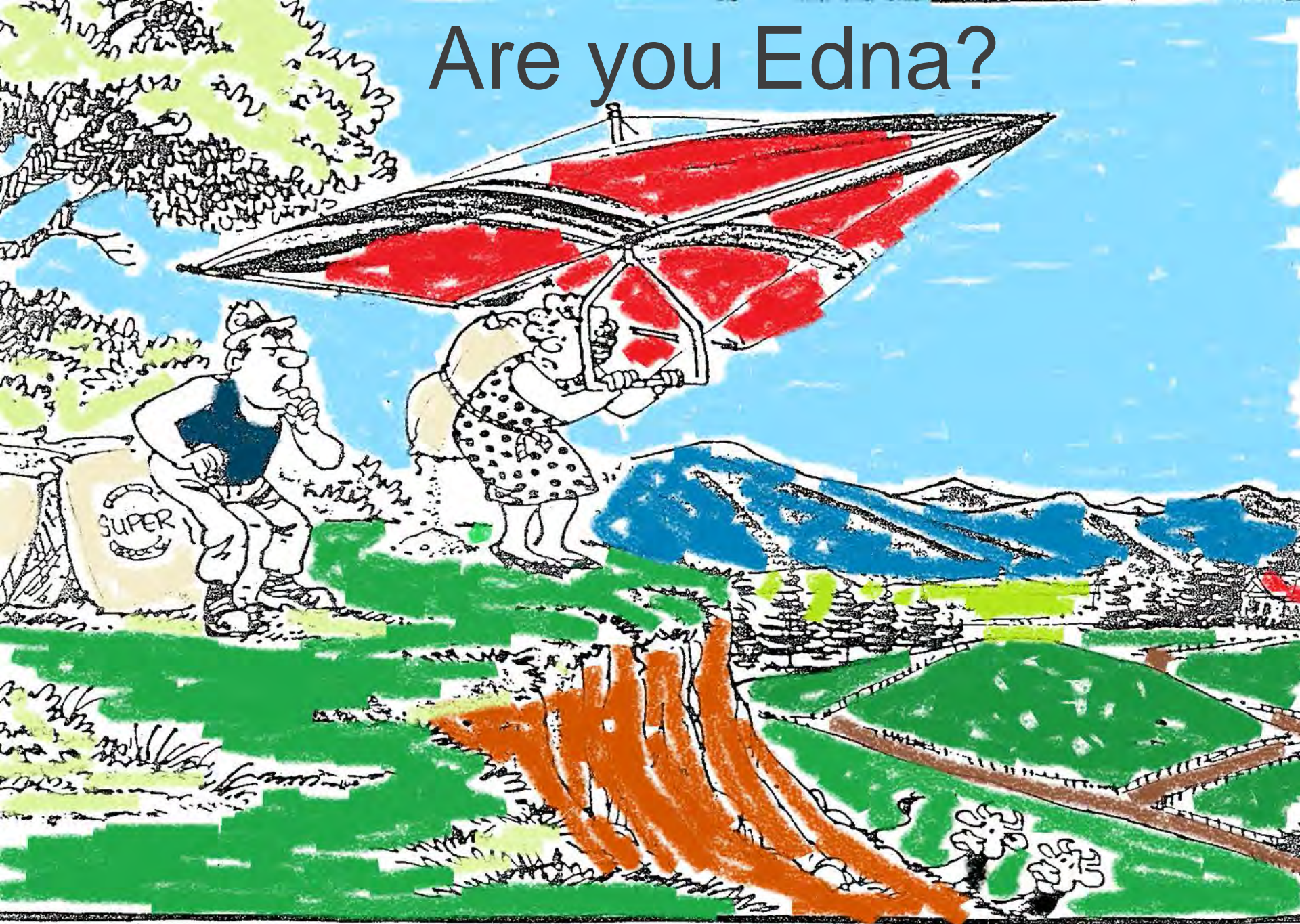


Department of  
Environment and  
Primary Industries





# Are you Edna?



"OK Edna — give the flats a dusting, then circle round and do the house paddock"



# Efficient & Effective fertiliser applications

**Efficient fertiliser** application can be achieved by refining phosphorus rates that are appropriate for your stocking rate and production goals.

**Effective fertiliser** application is helping you to prioritise which paddocks need a lift in fertility

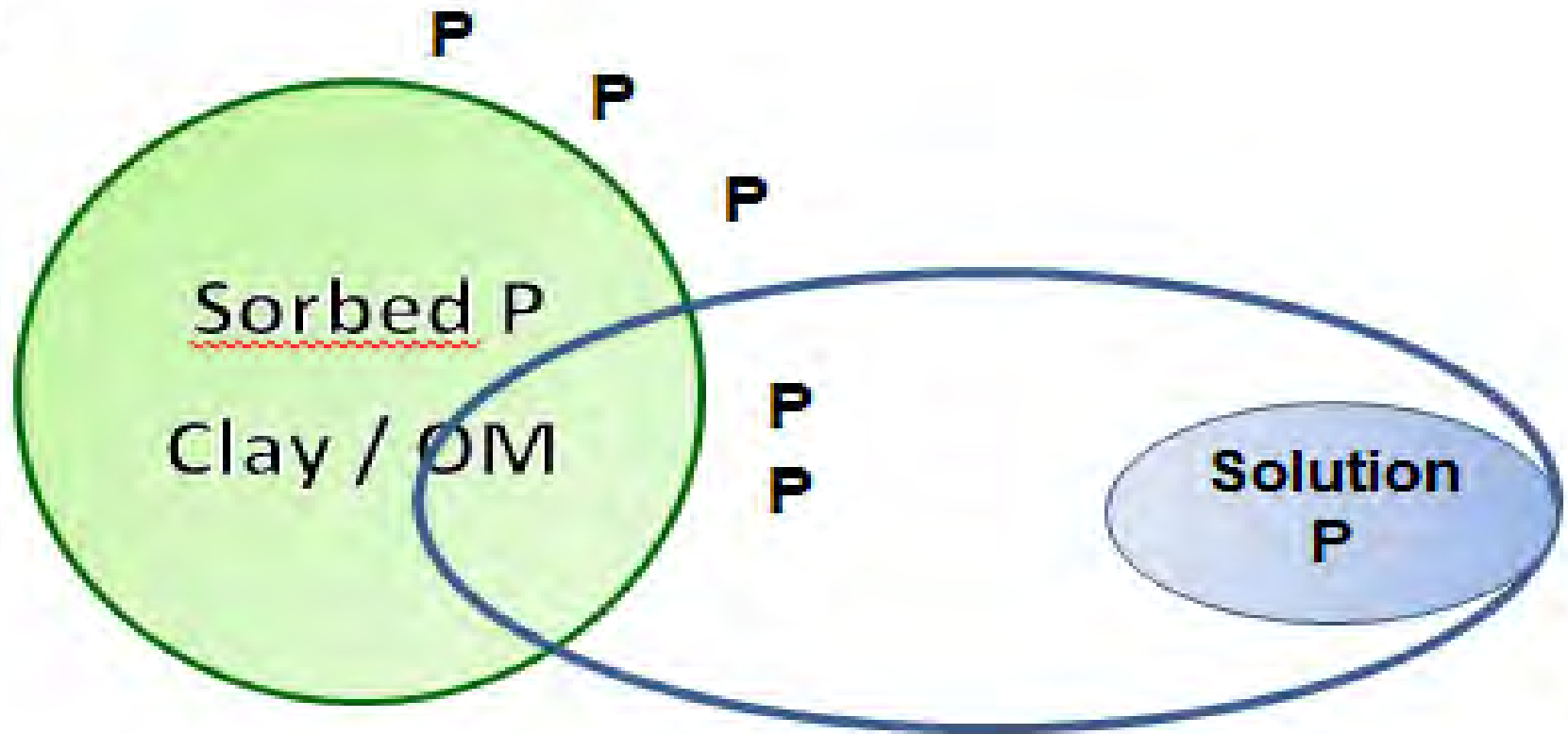
# Australian soil are low in P

- By world standards Australian soils are low in P.
- This is due to the P content of the parent material of many Australian soils.
- The soil derived from granites or sedimentary rocks which are naturally low in P

# Plant requirement of P

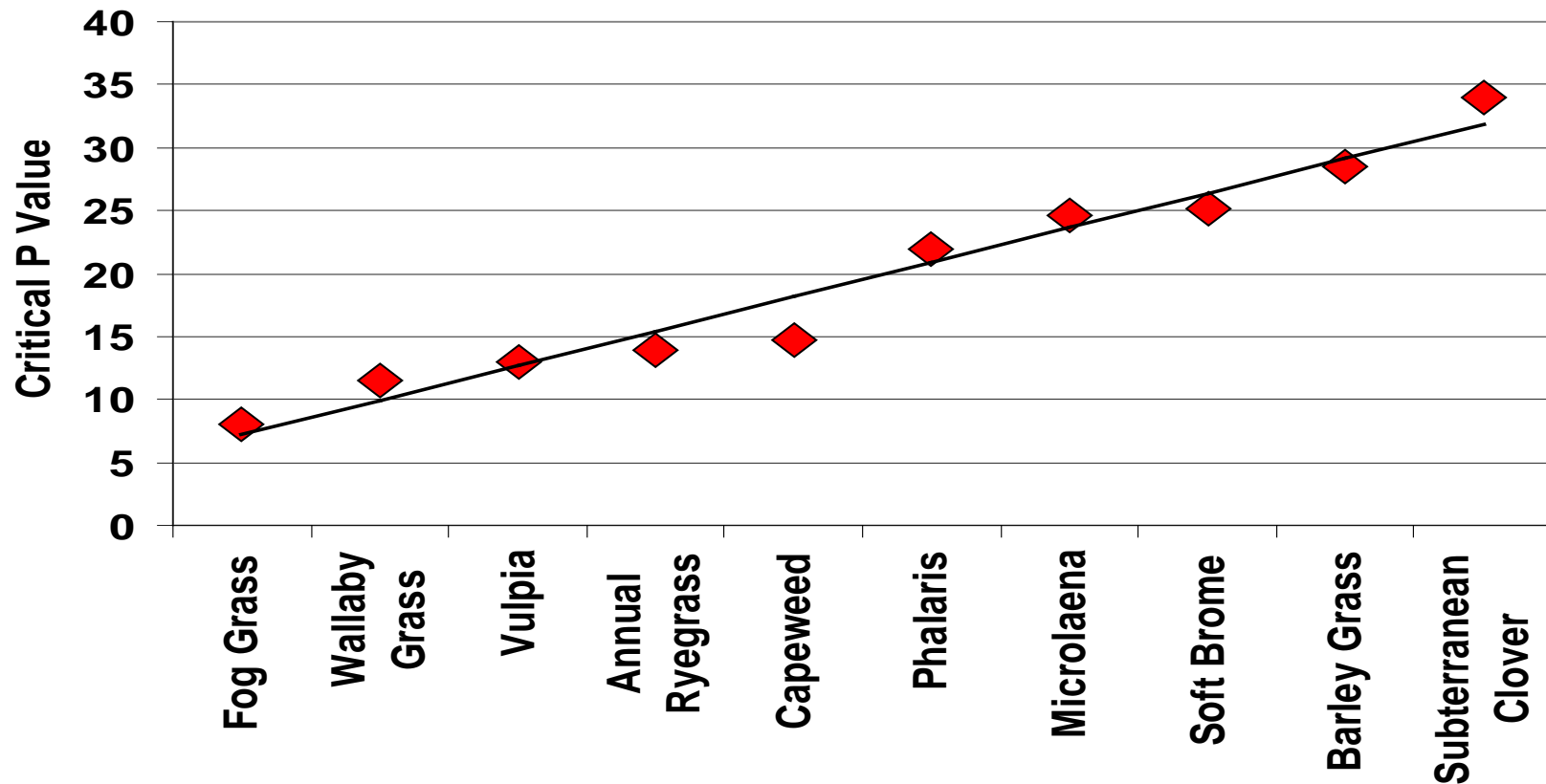
- Annual crops require a higher concentration of P at germination to ensure early vigour and plant growth
- P is the least mobile of major nutrients
- P needs to be 0.1 mm from the root hair for the plant to take it up
- Clover has a higher P requirement than grasses

# P (Colwell & Olsen)

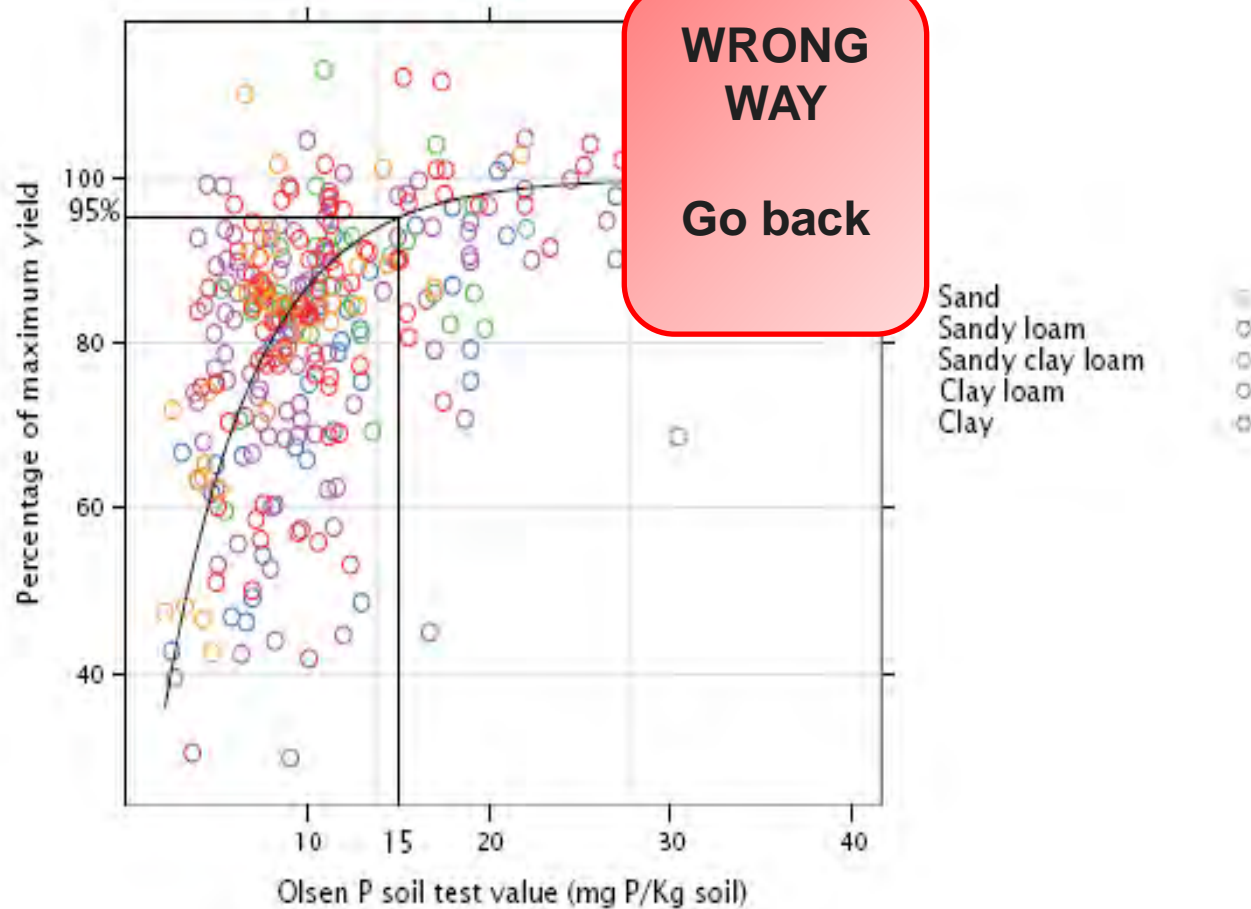


# Critical Colwell Phosphorus levels

**Relative Critical Phosphorous Level for Various Pasture Species**  
(Source: Hill et al AJAR, 2005)



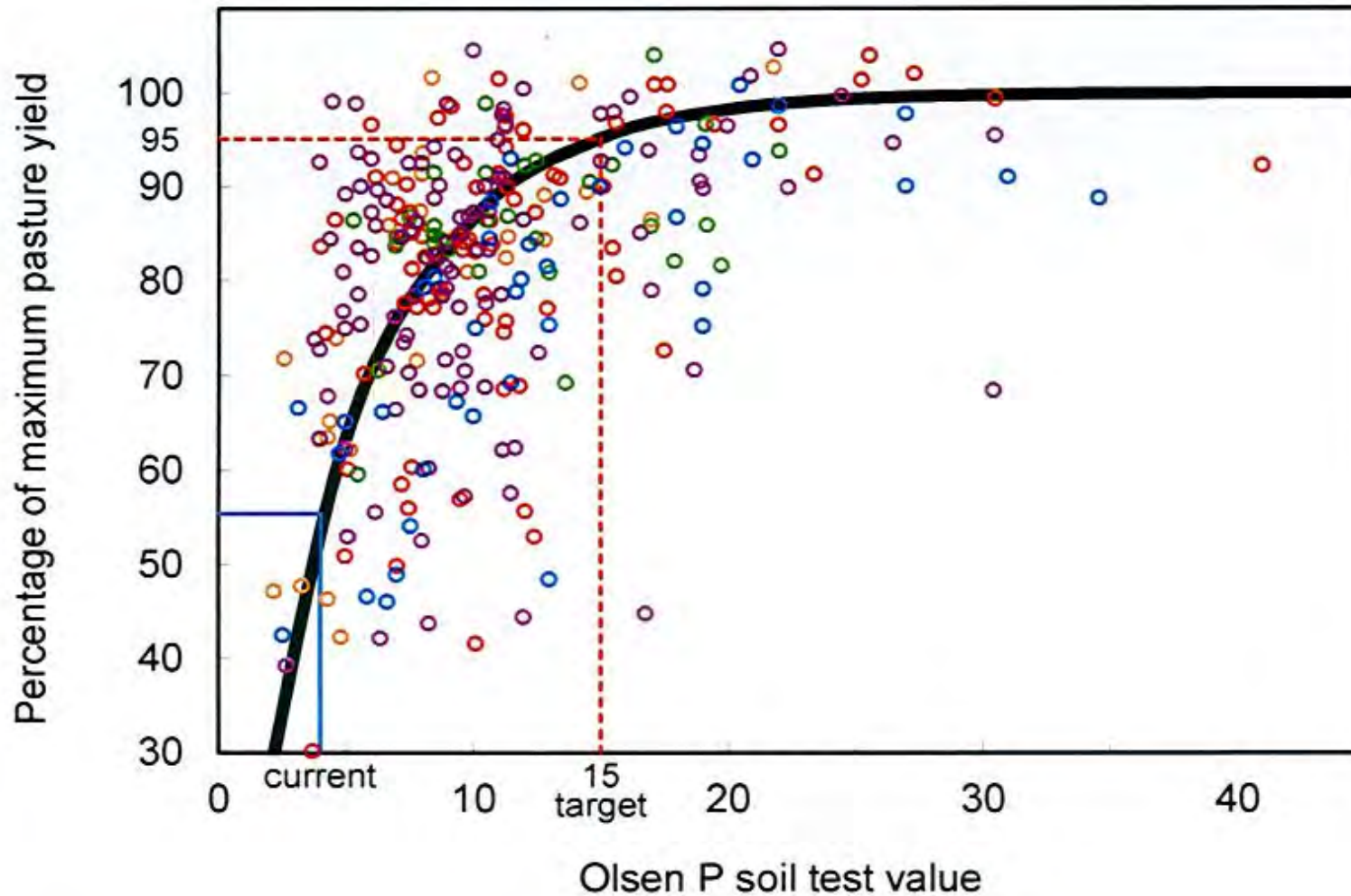
# What is your target Olsen P level?



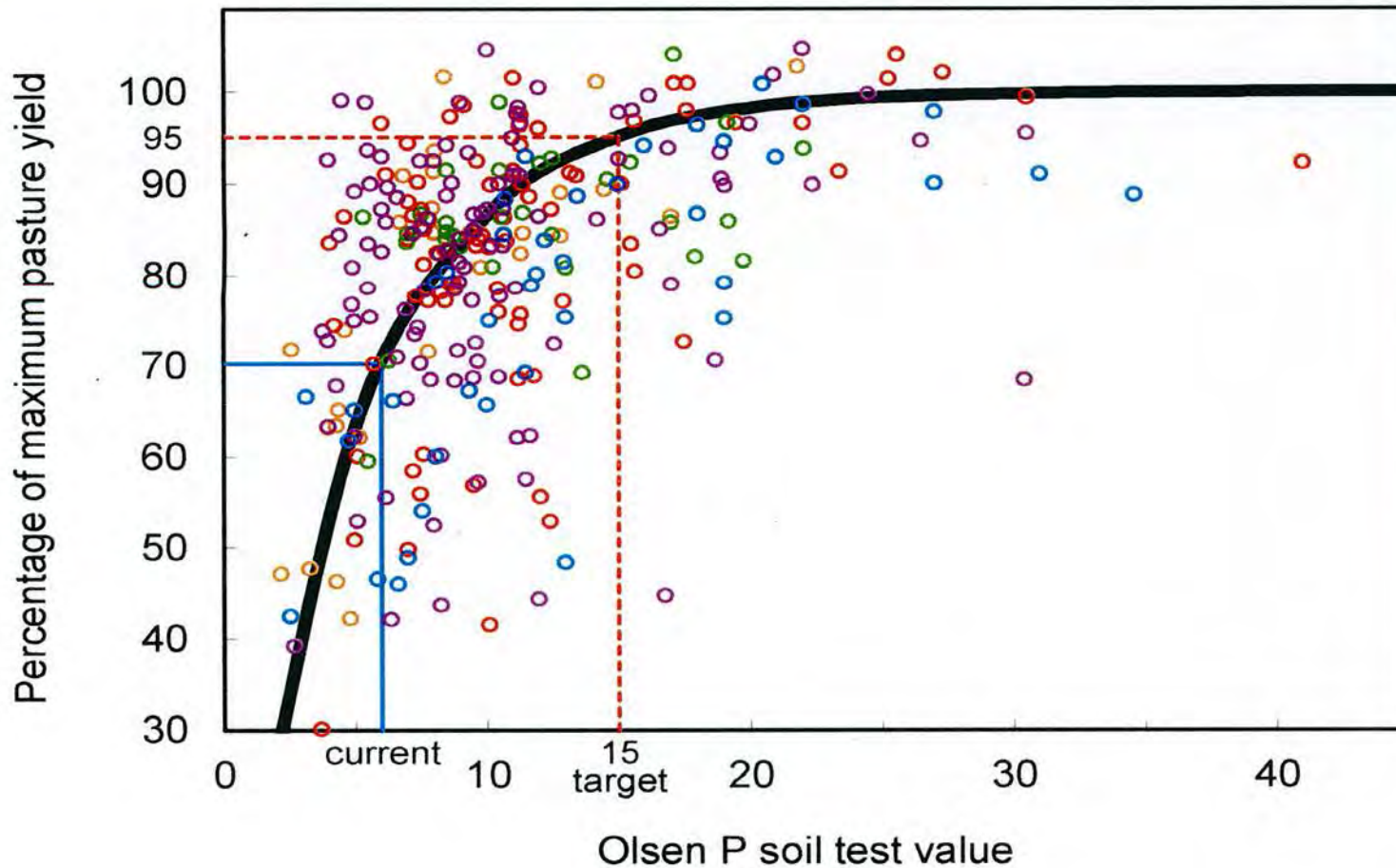
Source: Making Better Fertiliser Decisions for grazed pastures in Australia



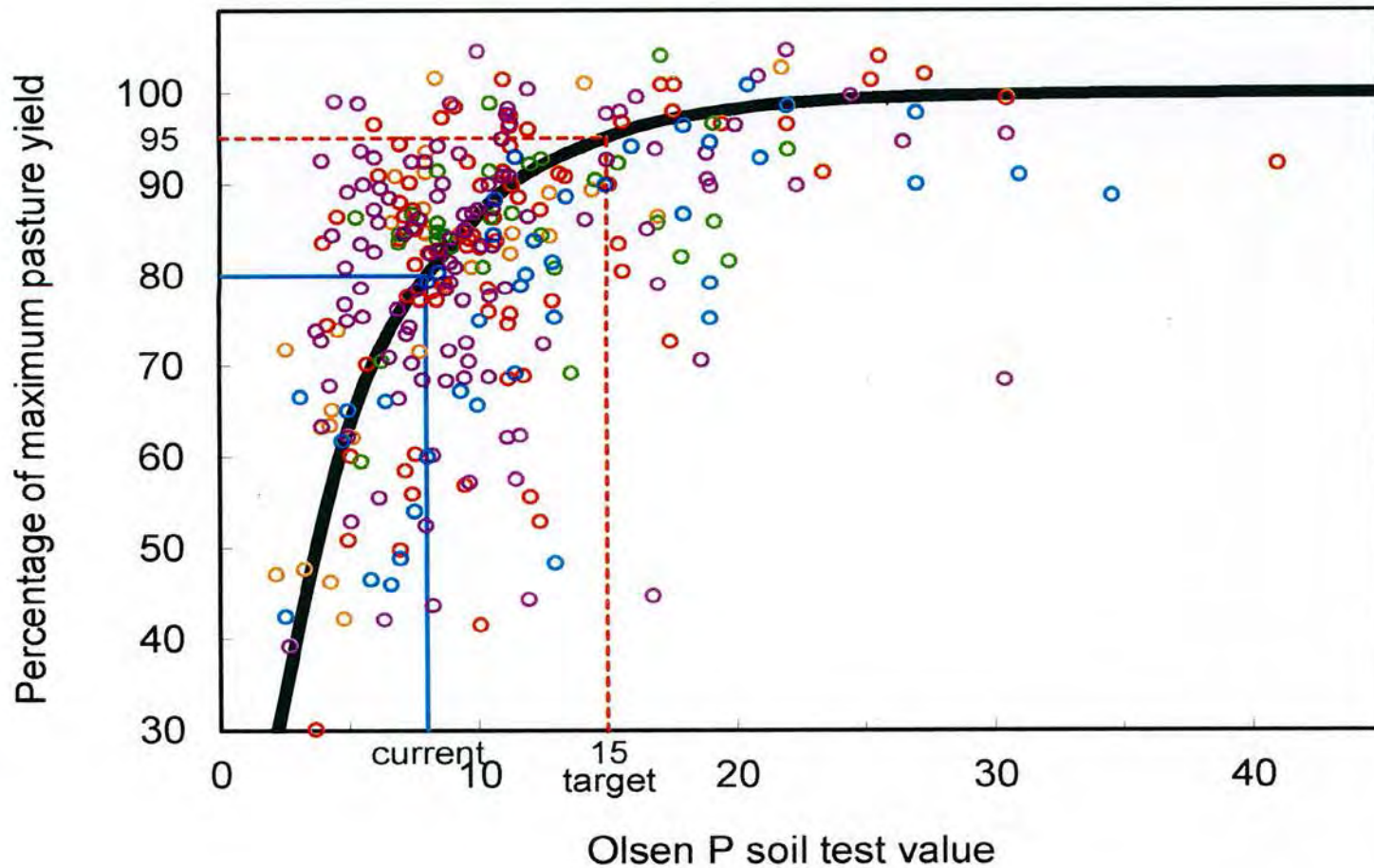
# Olsen P – 4 mg /kg



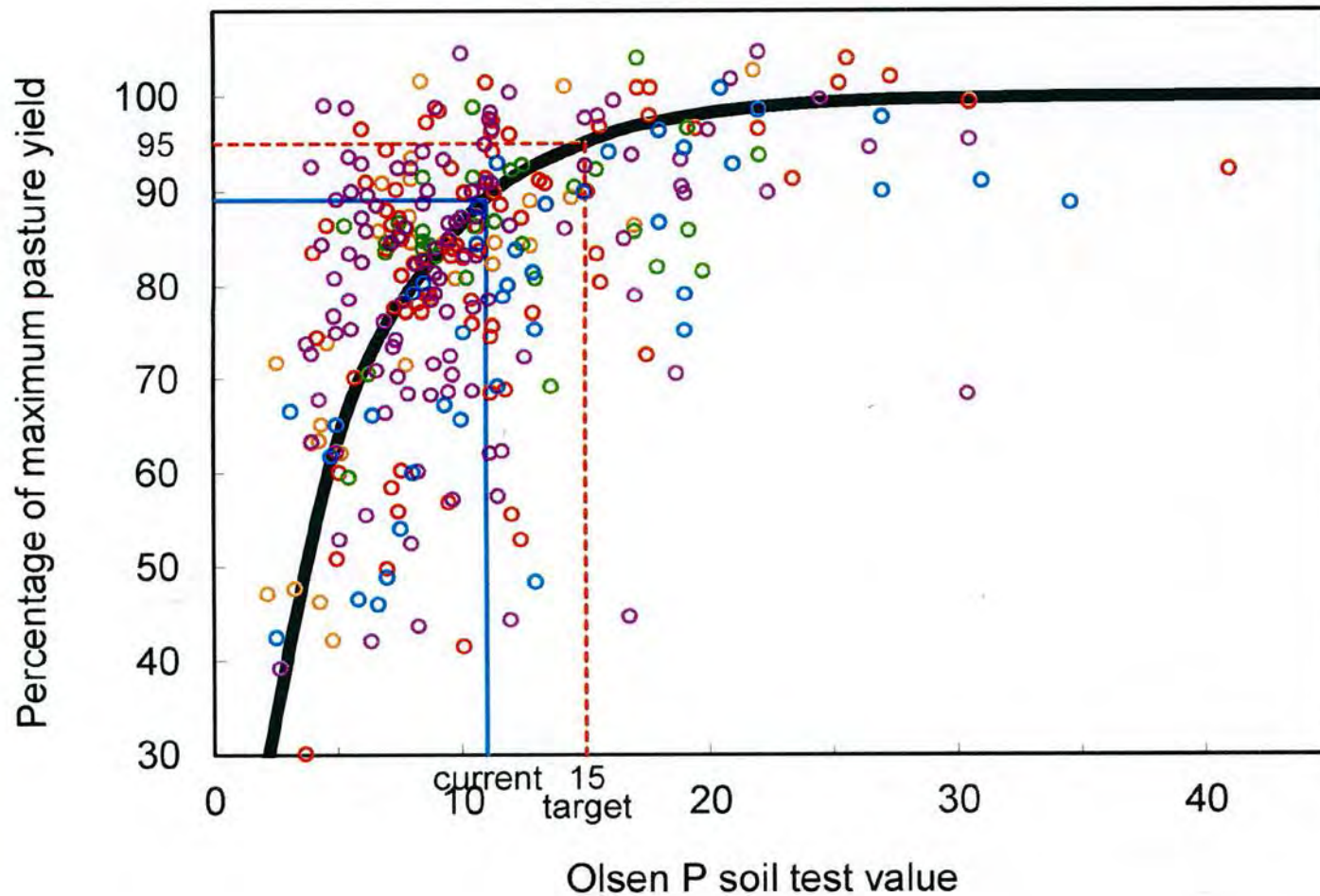
# Olsen P – 6 mg/kg



# Olsen P – 8 mg/kg



# Olsen P – 11 mg/kg





# Critical value for Colwell P

PBI Category		Critical P Colwell (mg/kg)	Range
< 15	Extremely low	23	20 – 24
15 – 35	Very very low	26	24 – 27
35 – 70	Very low	29	27 – 31
70 – 140	Low	34	31 – 36
140 – 280	Moderate	40	36 – 44
280 – 840	High	55	44 – 64
> 840	Very High	na	na

# Phosphorus Buffering Index

- Gives an indication of how tightly the soil holds onto P and how much P is required to maintain or raise P levels
- Use PBI to be more concise with fertiliser recommendations
- P soil test values generally decline slowly for soils with PBI greater than 100 – they do not crash
- High PBI will need more P to raise the soil P test level

# Critical value for Potassium

Soil Texture	Critical Value	Confidence Interval
Sand	126	109 – 142
Sandy loam	139	126 – 157
Sandy clay loam	143	127 – 173
Clay loam	161	151 – 182

# Critical value for sulphur

Sulphur test	Critical value	Confidence interval
CPC	3	2 – 4
KCl - 40	8	6 – 10



# What is your stocking rate (dse/ha)?

<i>Livestock type</i>	<i>Hd</i>	<i>Av. dse rating</i>	<i>Months on-farm (max 12)</i>	<i>Total dse</i>
Ewes	0	1.6	12	0
Weaners (sale)	0	1.3	4	0
Weaners (keep)	0	1.1	9	0
Wethers/dry ewes	0	1.0	12	0
Rams	0	2.2	12	0
Cows	140	16	12	2240
Weaners (sale)	100	8	2	133
Weaners (keep)	40	11	3	110
Steers/dry heifers	40	11	9	330
Bulls	5	11	12	55
				<b>2868</b>
	<b>Ha</b>	<b>174</b>	<b>dse/ha</b>	<b>16.48</b>

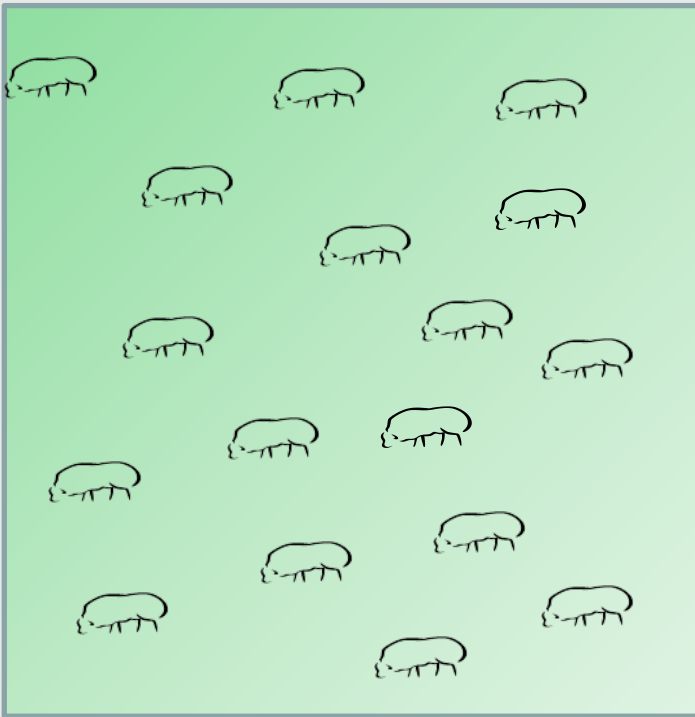
# Stocking rate (dse/ha)

DSE – Dry Sheep Equivalent represents the consumption of 1 kg dry matter (DM) required for a mature 50 kg wether or dry ewe to maintain its bodyweight.

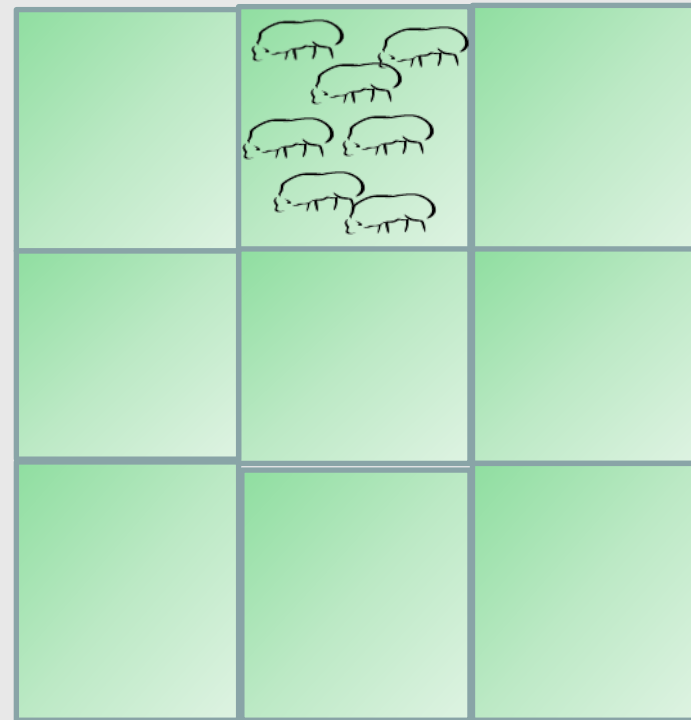
# What is your stocking rate?

- Stocking rate is the number of DSE carried on an area
- Usually calculated over a 12 month period
- The area may be a paddock, a group of paddocks or the whole property.

# Stocking rate (dse/ha)



1 x 18 ha paddock with 100 ewes and lambs @ 1.6 DSE  
Stocking rate =  $(100 \times 1.6) \div 18$   
ha = 8.8 DSE/ha



9 x 2 ha paddocks with 100 ewes and lambs @ 1.6 DSE  
Stocking rate =  $(100 \times 1.6) \div 18$   
ha = 8.8 DSE/ha



# What is your maintenance rate?

The amount of phosphorus required to replace the phosphorus used on the farm to maintain soil reserves at existing levels



# Maintenance Rate

Have you heard of the this rule of thumb

$$1 \text{ kg P / DSE / ha}$$

This has been refined

# Maintenance Fertiliser Application

It is influenced by soil type, grazing management, landscape and rainfall

Chart 1. Soil Loss Factor

<i>Soil Type</i>	<i>Soil Loss factor</i>
Loams / Sandy loams	Low
Clay loams	Medium
Clays	High

Chart 2. Landscape and Grazing Management Loss Factor

<i>Grazing Management</i>	<i>Landscape</i>	<i>Animal Loss factor</i>
Rotational grazing	Flat and rolling	Very Low
	Easy Hills	Low
	Steep Hills	Medium
Set Stocked	Flat and rolling	Low
	Easy Hills	Medium
	Steep Hills	High

# And rainfall

Chart 3. Maintenance Rate kg P / DSE

<i>Soil Loss Factor</i>	<i>Animal Loss Factor</i>	<i>Rainfall 600</i>	<i>Rainfall 700</i>	<i>Rainfall 800</i>
Low	Very Low	0.5	0.5	0.5
	Low	0.6	0.7	0.7
	Medium	0.8	0.8	0.8
	High	0.9	0.9	1
Meduim	Very Low	0.7	0.7	0.8
	Low	0.8	0.9	0.9
	Medium	1	1	1.1
	High	1.1	1.2	1.2
High	Very Low	0.9	1	1
	Low	1.1	1.1	1.2
	Medium	1.2	1.3	1.3
	High	1.3	1.4	1.5

Source : Better Fertilizer Decisions Project, DPI Vic



# Capital Application

- Applications of phosphorus made in excess of maintenance to raise phosphorus levels

# Capital Fertiliser Application

- Influenced by soil type and Phosphorus Buffering Index (PBI)

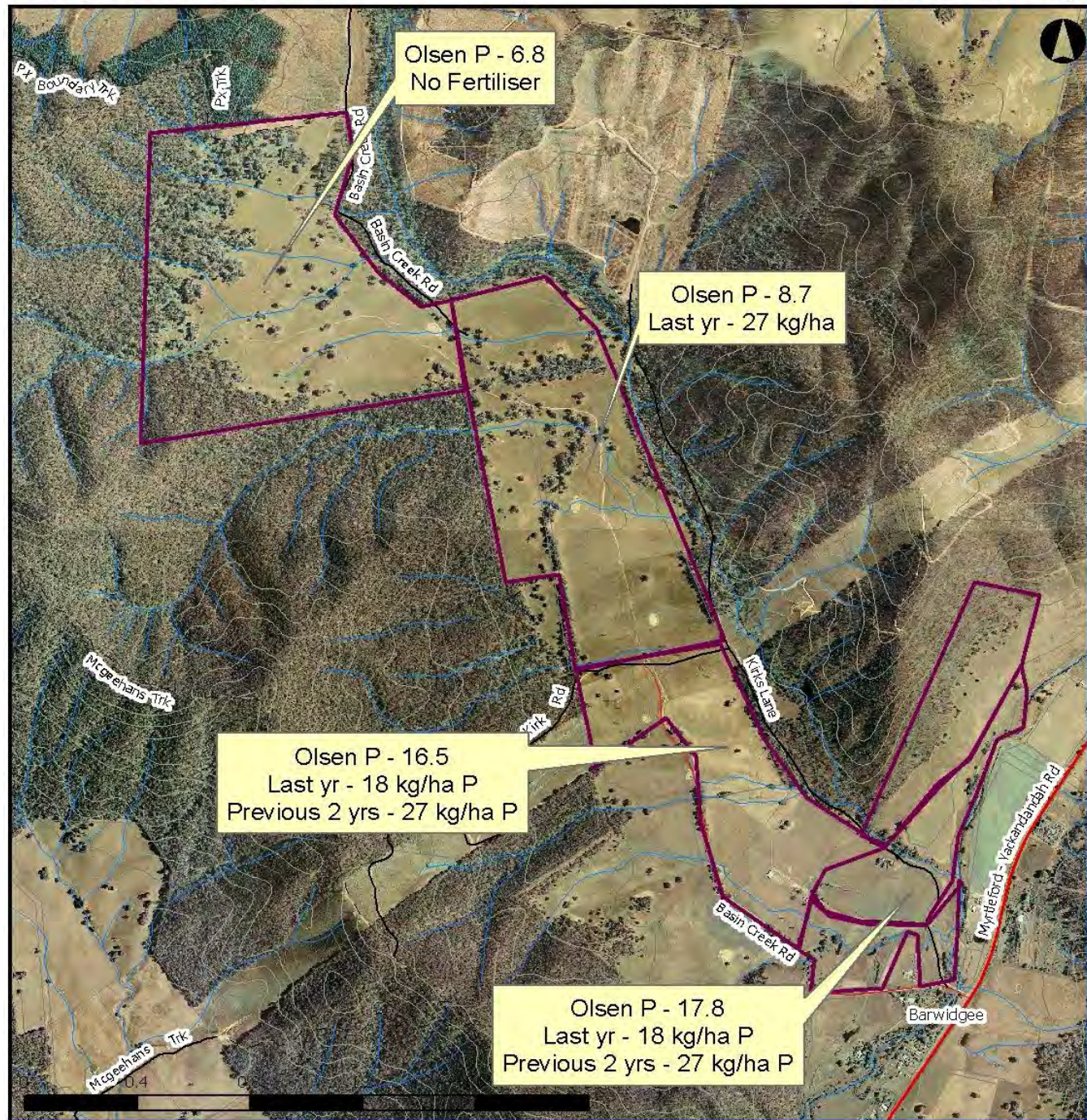
Chart 5. Kg/ha of P required to raise P level by one unit

<i><b>Soil Type</b></i>	<i><b>PBI</b></i>	<i><b>Colwell</b></i>	<i><b>Olsen</b></i>
Sand	0-50	2.2	<b>6</b>
Loams / Sandy loams	50-300	2.5	<b>9</b>
Clay loams	301-400	2.8	<b>10</b>
Clays	401-500	3.0	<b>11</b>

Source : Accounting for Nutrients on Australian Dairy Farms, DPI Vic / DPI Nsw









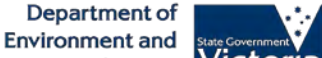



# Fertiliser Budget

Maintenance			+ Capital			= Fertiliser rate			Budget						
Paddock Name	Ha	Stocking Rate (dse/ha)	Maintenance (kg P/ha)	Current P Level	Target P Level	Capital (kg P/ha)	No <input type="radio"/>	M only <input type="radio"/>	M+C <input type="radio"/>	Fertiliser Product	Total (kg P/ha)	Budget Rate (kg fert/ha)	Spread Rate (kg fert/ha)	Total (tonnes)	Total Cost (\$)
Line 1	13	12	10.8	16.5	15	-13.5	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	18.0	205	200	2.60	\$ 1,035.32
Line 2	4	12	10.8	16	15	-9.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	18.0	205	200	0.80	\$ 318.56
Cutting	8	12	10.8	16	15	-9.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	18.0	205	200	1.60	\$ 637.12
Bull	8	12	10.8	16	15	-9.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	18.0	205	200	1.60	\$ 637.12
Shearing shed	6	12	10.8	16	15	-9.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	18.0	205	200	1.20	\$ 477.84
Gunstans Flat	5	12	10.8	18	15	-27.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	18.0	205	200	1.00	\$ 398.20
Gunstans Hill	7	12	10.8	9	15	54.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	27.0	307	300	2.10	\$ 836.22
Big flat	11	12	10.8	17.8	15	-25.2	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	27.0	307	300	3.30	\$ 1,314.06
Hut	9	12	10.8	9	15	54.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	27.0	307	300	2.70	\$ 1,075.14
Chambers	17	12	10.8	9	15	54.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	27.0	307	300	5.10	\$ 2,030.82
Big gully paddock	9	12	10.8	9	15	54.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	27.0	307	300	2.70	\$ 1,075.14
Marking yard	15	12	10.8	8.7	15	56.7	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	27.0	307	300	4.50	\$ 1,791.90
Gully crossing	10	12	10.8	9	15	54.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	27.0	307	300	3.00	\$ 1,194.60
Creek	10	12	10.8	9	15	54.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	27.0	307	300	3.00	\$ 1,194.60
Block	0	12	10.8	6.8	15	73.8	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
Cutting paddock 2	5	12	10.8	9	15	54.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	18.0	205	200	1.00	\$ 398.20
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		0.0	0.0			0.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0	0.0			0.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0	0.0			0.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0	0.0			0.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0	0.0			0.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0	0.0			0.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0	0.0			0.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0	0.0			0.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0	0.0			0.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0	0.0			0.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0	0.0			0.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0	0.0			0.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0	0.0			0.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0	0.0			0.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0	0.0			0.0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0	0.0												



## Fertiliser Budget

Maintenance			+ Capital			= Fertiliser rate			Budget						
Paddock Name	Ha	Stocking Rate (dse/ha)	Maintenance (kg P/ha)	Current P Level	Target P Level	Capital (kg P/ha)	No <input type="radio"/>	M only <input checked="" type="radio"/>	N+P <input type="radio"/>	Fertiliser Product	Total (kg P/ha)	Budget Rate (kg fert/ha)	Spread Rate (kg fert /ha)	Total (tonnes)	Total Cost (\$)
Line 1	13	12	10.8	16.5	15	-13.5	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	10.8	123	125	1.63	\$ 647.08
Line 2	4	12	10.8	16	15	-9.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	10.8	123	125	0.50	\$ 199.10
Cutting	8	12	10.8	16	15	-9.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	10.8	123	125	1.00	\$ 398.20
Bull	8	12	10.8	16	15	-9.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	10.8	123	125	1.00	\$ 398.20
Shearing shed	6	12	10.8	16	15	-9.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	10.8	123	125	0.75	\$ 298.65
Gunstans Flat	5	12	10.8	18	15	-27.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	10.8	123	125	0.63	\$ 248.88
Gunstans Hill	7	12	10.8	9	10	9.0	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Single super	19.8	225	225	1.58	\$ 627.17
Big flat	11	12	10.8	17.8	15	-25.2	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	10.8	123	125	1.38	\$ 547.53
Hut	9	12	10.8	9	10	9.0	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Single super	19.8	225	225	2.03	\$ 806.36
Chambers	17	12	10.8	9	10	9.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	19.8	225	225	3.83	\$ 1,523.12
Big gully paddock	9	12	10.8	9	10	9.0	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Single super	19.8	225	225	2.03	\$ 806.36
Marking yard	15	12	10.8	8.7	9.7	9.0	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Single super	19.8	225	225	3.38	\$ 1,343.93
Gully crossing	10	12	10.8	9	10	9.0	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Single super	19.8	225	225	2.25	\$ 895.95
Creek	10	12	10.8	9	10	9.0	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Single super	19.8	225	225	2.25	\$ 895.95
Block	19	12	10.8	6.8	7.8	9.0	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Single super	19.8	225	225	4.28	\$ 1,702.31
Cutting paddock 2	5	12	10.8	9	10	9.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	19.8	225	225	1.13	\$ 447.98
			0.0			0.0	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Single super	0.0	0	0	0.00	\$ -
			0.0			0.0	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Single super	0.0	0	0	0.00	\$ -
			0.0			0.0	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Single super	0.0	0	0	0.00	\$ -
			0.0			0.0	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Single super	0.0	0	0	0.00	\$ -
			0.0			0.0	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Single super	0.0	0	0	0.00	\$ -
	156	Maintenance rate kg P/dse	0.9		Capital rate kg P/unit	9	Change all			Single super			Single super	30.6	
													MAP	0.0	
													DAP	0.0	
													Other 1	0.0	\$ 11,786.72
													Other 2	0.0	
													Other 3	0.0	



Saving \$2600 plus fertilising an extra 19ha  
55 ha maintenance  
101 ha increasing phosphorus

# Fertiliser Budget

	Maintenance			+ Capital			= Fertiliser rate			Budget					
Paddock Name	Ha	Stocking Rate (dse/ha)	Maintenance (kg P/ha)	Current P Level	Target P Level	Capital (kg P/ha)	No	M only	M+C	Fertiliser Product	Total (kg P/ha)	Budget Rate (kg fert/ha)	Spread Rate (kg fert /ha)	Total (tonnes)	Total Cost (\$)
Line 1	13	12	10.8	16.5	15	-13.5	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	9.0	102	100	1.30	\$ 517.66
Line 2	4	12	10.8	16	15	-9.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	9.0	102	100	0.40	\$ 159.28
Cutting	8	12	10.8	16	15	-9.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	9.0	102	100	0.80	\$ 318.56
Bull	8	12	10.8	16	15	-9.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	9.0	102	100	0.80	\$ 318.56
Shearing shed	6	12	10.8	16	15	-9.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	9.0	102	100	0.60	\$ 238.92
Gunstans Flat	5	12	10.8	18	15	-27.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	9.0	102	100	0.50	\$ 199.10
Gunstans Hill	7	12	10.8	9	15	54.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	10.8	123	125	0.88	\$ 348.43
Big flat	11	12	10.8	17.8	15	-25.2	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	9.0	102	100	1.10	\$ 438.02
Hut	9	12	10.8	9	15	54.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	10.8	123	125	1.13	\$ 447.98
Chambers	17	12	10.8	9	15	54.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	10.8	123	125	2.13	\$ 846.18
Big gully paddock	9	12	10.8	9	15	54.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	10.8	123	125	1.13	\$ 447.98
Marking yard	15	12	10.8	8.7	15	56.7	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	10.8	123	125	1.88	\$ 746.63
Gully crossing	10	12	10.8	9	15	54.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	10.8	123	125	1.25	\$ 497.75
Creek	10	12	10.8	9	15	54.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	10.8	123	125	1.25	\$ 497.75
Block	19	12	10.8	6.8	15	73.8	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	10.8	123	125	2.38	\$ 945.73
Cutting paddock 2	5	12	10.8	9	15	54.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	10.8	123	125	0.63	\$ 248.88
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super	0.0	0	0	0.00	\$ -
		0.0				0.0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Single super</					

## Question to ask yourself?

What are my target P levels?



Do you have the pasture composition, grazing management and optimum pH level to get the benefit of an Olsen P of 15.

# Question to ask yourself?

- Do I have the pasture to utilise the extra P?

