



Nutrient Advantage Advice®

Recommendation Report

Goulburb Abs Mazemet Rd

Goulburn

NSW 2580

Report Print Date:	25/06/2018
Agent/Dealer:	
Advisor/Contact:	Andrew Harborne
Phone:	
Purchase Order No:	GL080518

Grower Name:	Goulburb Abs	Nearest Town:	GOULBURN
Sample No:	021552916	Test Code:	E22
Paddock Name:	SS1	Sample Type:	Soil
Sample Name:	SS	Sampling Date:	08/05/2018
Sample Depth (cm)	0 To 10		

Analyte / Assay	Unit	Value	Very Low	Marginal	Optimum	High	Excess	Optimal
Soil Colour		Grey			· · · · · · · · · · · · · · · · · · ·			
Soil Texture		Clay Loam						
pH (1:5 Water)		7.1	Slightly alka	aline				6.0 - 7.0
pH (1:5 CaCl2)		6.5	May vary d	epending c	n plant spec	cies		5.2 - 6.0
Electrical Conductivity (1:5 water)	dS/m	0.24	Not saline.					< 0.29
Electrical Conductivity (Sat. Ext.)	dS/m	1.9						<1.9
Chloride	mg/kg	39	Low and ha	rmless to p	plant growth			< 180
Organic Carbon (W&B)	%	3.9	, i i i i i i i i i i i i i i i i i i i					2.3 - 5.3
Nitrate Nitrogen	mg/kg	34						25-30
Ammonium Nitrogen	mg/kg	5						10-15
Total Nitrogen (Kjeldahl)	%	0.47						
Phosphorus (Olsen)	mg/kg	122						
Phosphorus (Colwell)	mg/kg	590						37 - 48
Phosphorus Buffer Index		150	Moderate p	hosphorus	fixation cap	acity		
Phosphorus Environmental Risk Index		3.93	Risk of P lo	ss to envir	onment			
Potassium (Colwell)	mg/kg	810						170 - 220
Sulphur (KCl40)	mg/kg	20						9 - 12
Cation Exch. Cap. (CEC)	cmol(+)/kg	16.5						>8
Calcium (Amm-acet.)	cmol(+)/kg	8.4						3 - 5
Magnesium (Amm-acet.)	cmol(+)/kg	5.6						1 - 2
Sodium (Amm-acet.)	cmol(+)/kg	0.86	Potentially	narmful to	plant growth			< 0.7
Potassium (Amm-acet.)	cmol(+)/kg	1.60						
Aluminium (KCI)	cmol(+)/kg	<0.1						
Aluminium % of Cations	%	<1.0	There are n	o problem	s with Alumi	nium toxicit	:y	< 5%



Analyses conducted by Nutrient Advantage Laboratory Services

For a copy of Laboratory Methods of Analysis please go to www.nutrientadvantage.com.au

8 South Road, Werribee VIC 3030 Tel: 1800 803 453

lab.feedback@incitecpivot.com.au



NATA Accreditation No: 11958 <u>Certificate of Analysis</u> is available upon request.

Sample No 021552916

Version: 2

Email:







Nutrient Advantage Advice®

Recommendation Report

Grower Name:	Goulburb Ab			
Sample No:	021552916			
Paddock Name:	SS1			
Sample Name:	SS			
Sample Depth (cm)	0	То		

s 10 Nearest Town: E22 Test Code: Sample Type: Soil Sampling Date:

GOULBURN 08/05/2018

Analyte / Assay	Unit	Value	Very Low Marginal Optimum High Excess	Optimal
Grass Tetany Risk Index		0.11		
Calcium % of Cations	%	51.0	Marginal for soil structure, check sodicity	60 - 85 %
Magnesium % of Cations	%	34.0	May affect dispersion in cultivated soils	< 25 %
Sodium % of Cations (ESP)	%	5.20	Non sodic soil, stable soil structure likely	< 6.0
Potassium % of Cations	%	9.80		3-7%
Calcium/Magnesium Ratio		1.5	If soil sodic, dispersion possible	> 2.0

The results reported pertain only to the sample submitted.

Analyses performed on soil dried at 40 degrees Celsius and ground to <2mm (excluding moisture assay)







	Nu	trien	t A	dvanta	age .	Advic	e®.		Recoi	nmen	datio	on Re	epo	ort	
Grower Nan Sample No: Paddock Na Sample Nar Sample Dep	ne: ame: ne: oth (cm)	Goulbu 021552 SS1 SS 0	⁻ b Abs 916 To	10			Ne Te Sa Sa	earest 1 st Code Imple 1 Impling	ōwn: e: ype: y Date:	GOULBUF E22 Soil 08/05/2018	RN 3				
Sample Detai Enterprise (C Pasture: Proposed So	Sample Details:Enterprise (Crop):PASTUREActivity (enterprise):Beef/SheepPasture:ExistingProposed Sowing Method:Time of Sowing:														
Dairy Stockir Other Stock Cuts per year Seed Produc	ng Rate (c Type: r: tion Type:	ows/ha):	Beef/sheep Stocking Rate (dse/ha): 10.00 Other Stocking Rate (dse/ha): Yield per Cut (t/ha) : Fodder Crop Type:												
Sample Dept	h (cm) Fro	om:		0				То:				10			
						Reco	nme	ndat	ions						
Product Recommenda	ition			Applicatio Rate (kg/h (Unless St	n a) ated)	Timing		Appl Meth	ication od	N kg/h	a	P kg/ha	k	K g/ha	S kg/ha
Total Nutrient	Applied														
This Recom	This Recommendation has been done by: Andrew Harborne (195)														
Other Elemen in recommence	ts lation			Ca kg/ha	Mg kg/ha	Cu kg/ha	k	Zn (g/ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe kg/ł	na	Mn kg/ha	Si kg/ha
Total Nutrient	Applied														
Legend:	N : Nitro Mg : Ma B : Boro	ogen gnesium on		P : Phos Cu : Cop Fe : Iron	sphorus oper		K : P Zn : Z Mn : I	otassiur ′inc ⁄Iangan	n ese	S : Sulp Mo : Mo Si : Silic	ohur Iybdenum on	-	Ca Co	: Calcium : Cobalt	







Nu	trient Advantage Ad	lvice [®] Reco	mmendation Report
Grower Name:	Goulburb Abs	Nearest Town:	GOULBURN
Sample No:	021552916	Test Code:	E22
Paddock Name:	SS1	Sample Type:	Soil
Sample Name:	SS	Sampling Date:	08/05/2018
Sample Depth (cm)	0 To 10		
		Comments	

What is the soil "Phosphorus Environmental Risk Index"?

The Phosphorus Environmental Risk Index (PERI) is defined as the ratio between the amount of P present in the soil (Colwell P) and the capacity of that soil to retain P (PBI). As a soil becomes increasingly "saturated" with P two things will occur. First, the quantity of soluble P that can be lost from soils by surface runoff and by leaching through internal drainage into shallow groundwaters increases. Second, eroding soil particles are increasingly enriched in biologically available P and thus more likely to release P into waters when they are deposited as sediments in creeks, rivers, dams, and lakes.

PERI - (Phosphorus Environmental Risk Index): This information is based on early research findings for a limited range of soils and climates and should be used as a guide only. Soil solution losses of P from this soil via internal drainage or run-off are likely to negatively impact the environment. Precautions need to be taken to prevent soil water draining directly to water bodies such as creeks, rivers, dams and lakes. Take appropriate actions to ensure runoff water does not drain into riparian areas. Phosphorus application, including materials such as manures, composts, bio-solids and organic by-products containing phosphorus, should be discontinued until the PERI falls to 0.65 or below. Monitor the situation through a routine soil sampling program.

Guideline Consideration for Nitrogen Use on Pastures

1. Grazing Management (mature pasture) is critical in maintaining a good grass density - graze to a minimum of 1200kgDM/ha (or 5cm in height) - over grazing will cause ryegrass decline, lax grazing will cause shading, tiller death, lower feed quality and density decline. The optimal time for nitrogen application is immediately following a grazing. Ryegrass should be grazed at 2.5-3 leaf stage (spring graze at 2.5 leaf stage) which corresponds with optimal white clover grazing. Phalaris grazing is set at 4-5 leaf stage.

Following a nitrogen application stock should be excluded from the paddock for a 3 week period to avoid nitrate poisoning.

Grazing Management (establishing pasture). Phosphorus should be applied close to the seed at sow, maximum nitrogen safe seed rate is 10kgN/ha with the seed. Lightly graze pasture 4-6 weeks post emergence (or when seedlings won't pull from soil) and then apply an application of nitrogen to encourage tillering.

Pasture Composition plays a part in determining nitrogen responses - generally pastures with a high composition of improved grasses ie.ryegrass and low to moderate composition of clover (up to 30%) will provide the better pasture response, as will pastures with minimal weeds, disease and insect pest activity.
Paddock fertility is very important in supporting a healthy pasture - ensure major nutrients, trace elements and soil ameliorates are addressed to improve

dry matter responses to nitrogen applications.

4. Moisture is probably the major limiting factor to nitrogen responses - ensure the soil has adequate soil moisture to sustain production and following a broadcast nitrogen application at least 5mm (light soil) or 10mm (heavy soil) rainfall event or irrigation follows within 2 days of application. Green Urea can be consider if volatilisation is considered to be an issue.

5. Application Rates should be in a range of 30-50kgN/ha.

6. Time of year (season) causes variation in responses to nitrogen. Responses to perennial ryegrass can be as low as 5 kgDM/ha/kgN in the winter and up to 25 kgDM/ha/kgN in the spring. Italian type ryegrasses tend to be more responsive to nitrogen than perennials. Forward thinking in predicting future gaps will allow nitrogen applications to be used to maximum efficiency ie. Aug 15 calving herd should have nitrogen applied on 1st July assuming leaf emergence every 15 days.

Don't apply nitrogen if soil temperatures are below 5°C as ryegrass has stopped growing.

7. Cost of Dry Matter is the key consideration in determining whether nitrogen should be applied or not. Estimates on expected dry matter responses and ulitisation coupled with the cost of nitrogen will provide a dry matter cost, this can then be compared to other feed alternative to see the value (or not) in using nitrogen. These costs will vary during the year with winter feed the most expensive.

8. Environment can be negatively impacted by poor nitrogen management. Don't apply close to waterways, or to paddocks that are waterlogged and grasses are not growing.

9. Utilisation - If the additional pasture Dry Matter grown as a result of applying Nitrogen can not be utilised, do not apply Nitrogen.

Follow the points listed above for best practice management.

Disclaimer: Laboratory analyses and fertiliser recommendations are made in good faith, based on the best technical information available as at the date of this report. Incitec Pivot Limited, its officers, employees, consultants, Agents and Dealers do not accept any liability whatsoever arising from or in connection with the analytical results, interpretations and recommendations provided, and the client takes the analytical results, interpretations and recommendations on these terms. In respect of liability which cannot be excluded by law, Incitec Pivot's liability is restricted to the re-supply of the laboratory analysis or the cost of having the analysis re-supplied.







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Agent/Dealer:	
Advisor/Contact:	Andrew Harborne
Phone:	
Purchase Order No:	GL080518

Grower Name:	Goulburb Abs	Nearest Town:	GOULBURN
Sample No:	021552915	Test Code:	E22
Paddock Name:	SS2	Sample Type:	Soil
Sample Name:	SS2	Sampling Date:	08/05/2018
Sample Depth (cm)	0 To 10		

Analyte / Assay	Unit	Value	Very Low	Marginal	Optimum	High	Excess	Optimal
Soil Colour		Brown						
Soil Texture		Clay Loam						
pH (1:5 Water)		6.4	Slightly acid	lic				6.0 - 7.0
pH (1:5 CaCl2)		5.9	May vary de	epending o	n plant spe	cies		5.2 - 6.0
Electrical Conductivity (1:5 water)	dS/m	0.38	Slightly salir	ne.				< 0.29
Electrical Conductivity (Sat. Ext.)	dS/m	3.0						<1.9
Chloride	mg/kg	100	Low and ha	rmless to p	plant growth			< 180
Organic Carbon (W&B)	%	2.8	,					2.3 - 5.3
Nitrate Nitrogen	mg/kg	110			• •			25-30
Ammonium Nitrogen	mg/kg	22						10-15
Total Nitrogen (Kjeldahl)	%	0.33						
Phosphorus (Olsen)	mg/kg	112						
Phosphorus (Colwell)	mg/kg	390						32 - 42
Phosphorus Buffer Index		81	Moderately	low phosp	horus fixatio	on capacity		
Phosphorus Environmental Risk Index		4.81	Risk of P lo	ss to envir	onment			
Potassium (Colwell)	mg/kg	840						170 - 220
Sulphur (KCl40)	mg/kg	25						9 - 12
Cation Exch. Cap. (CEC)	cmol(+)/kg	11.1						>8
Calcium (Amm-acet.)	cmol(+)/kg	5.7						3 - 5
Magnesium (Amm-acet.)	cmol(+)/kg	3.0						1 - 2
Sodium (Amm-acet.)	cmol(+)/kg	0.64	Low risk of	being harn	ful to plant	growth		< 0.7
Potassium (Amm-acet.)	cmol(+)/kg	1.80						
Aluminium (KCI)	cmol(+)/kg	<0.1						
Aluminium % of Cations	%	<1.0	There are n	o problem	s with Alumi	nium toxici	ty	< 5%



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Sample No 021552915

Version: 2







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Recommendation Report

Grower Name:	Goulburb Ab				
Sample No:	02155	2915			
Paddock Name:	SS2				
Sample Name:	SS2				
Sample Depth (cm)	0	То			

s 10 Nearest Town: GOULBURN E22 Test Code: Sample Type: Soil 08/05/2018 Sampling Date:

Analyte / Assay	Unit	Value	Very Low Marginal Optimum High Excess	Optimal
Grass Tetany Risk Index		0.21		
Calcium % of Cations	%	51.0	Marginal for soil structure, check sodicity	60 - 85 %
Magnesium % of Cations	%	27.0	May affect dispersion in cultivated soils	< 25 %
Sodium % of Cations (ESP)	%	5.80	Non sodic soil, stable soil structure likely	< 6.0 %
Potassium % of Cations	%	16.00		3-7 %
Calcium/Magnesium Ratio		1.9	If soil sodic, dispersion possible	> 2.0

The results reported pertain only to the sample submitted.

Analyses performed on soil dried at 40 degrees Celsius and ground to <2mm (excluding moisture assay)







	Nu	trien	t A	dvanta	ige /	Advi	Ce®		Recor	nmen	datio	n Rep	ort	
Grower Na Sample No Paddock N Sample Na Sample De	ame: o: Name: ame: epth (cm)	Goulbu 021552 SS2 SS2 0	rb Abs 915 To	10			Ne Te: Sa Sa	arest 1 st Code mple 1 mpling	ōwn: e: ype: y Date:	GOULBUF E22 Soil 08/05/2018	RN 3			
Sample Det Enterprise (Pasture: Proposed S Dairy Stock Other Stock	Sample Details: Enterprise (Crop): PASTURE Pasture: Existing Proposed Sowing Method: Time of Sowing: Dairy Stocking Rate (cows/ha): Beef/sheep Stocking Rate (dse/ha): Other Stock Type: Other Stocking Rate (dse/ha):													
Cuts per ye Seed Produ Sample Dep	ear: iction Type: oth (cm) Fro	om:		0			 	Yield pe Fodder To:	er Cut (t/ha) Crop Type:	:		10		
						Reco	mme	ndat	ions					
Product Recomment	dation			Applicatio Rate (kg/h (Unless St	n a) ated)	Timing		Appl Meth	ication od	N kg/h	ia k	P g/ha	K kg/ha	S kg/ha
Total Nutrie	nt Applied			1										
This Reco	mmendati	on has b	een d	lone by:	And	lrew Harb	orne (1	95)		1		I		
Other Eleme	ents ndation			Ca kg/ha	Mg kg/ha	Cu kg/h	a k	Zn :g/ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe kg/ha	Mn kg/ha	Si kg/ha
Total Nutrien	nt Applied													
Legend:	N : Nitro Mg : Ma B : Boro	ogen gnesium on		P : Phos Cu : Cop Fe : Iron	phorus per		K : Po Zn : Z Mn : N	otassiur ïnc ⁄Iangan	n ese	S : Sulp Mo : Mc Si : Silic	bhur Nybdenum	(Ca : Calcium Co : Cobalt	







Nu	trier	nt A	dv	intage Advice®	Reco	mmendation Report		
Grower Name:	Goulb	urb Ab	s	Neares	st Town:	GOULBURN		
Sample No:	02155	2915		Test C	ode:	E22		
Paddock Name:	SS2			Sampl	e Type:	Soil		
Sample Name:	SS2			Sampl	ing Date:	08/05/2018		
Sample Depth (cm)	0	То	10					
Comments								

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Goulburn

NSW 2580

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Agent/Dealer:	
Advisor/Contact:	Andrew Harborne
Phone:	
Purchase Order No:	GL080518

Grower Name:	Goulburb Abs	Nearest Town:	GOULBURN
Sample No:	021552914	Test Code:	E22
Paddock Name:	SS3	Sample Type:	Soil
Sample Name:	SS3	Sampling Date:	08/05/2018
Sample Depth (cm)	0 To 10		

Analyte / Assay	Unit	Value	Very Low Marginal Optimum High Excess	Optimal
Soil Colour		Brown		
Soil Texture		Clay Loam		
pH (1:5 Water)		6.3	Slightly acidic	6.0 - 7.0
pH (1:5 CaCl2)		5.7	May vary depending on plant species	5.2 - 6.0
Electrical Conductivity (1:5 water)	dS/m	0.35	Slightly saline.	< 0.29
Electrical Conductivity (Sat. Ext.)	dS/m	2.8		<1.9
Chloride	mg/kg	200	Slightly harmful to plant growth	< 180
Organic Carbon (W&B)	%	2.5		2.3 - 5.3
Nitrate Nitrogen	mg/kg	67		
Ammonium Nitrogen	mg/kg	5		
Total Nitrogen (Kjeldahl)	%	0.29		
Phosphorus (Olsen)	mg/kg	113		
Phosphorus (Colwell)	mg/kg	480		34 - 44
Phosphorus Buffer Index		110	Moderately low phosphorus fixation capacity	
Phosphorus Environmental Risk Index		4.36	Risk of P loss to environment	
Potassium (Colwell)	mg/kg	550		170 - 220
Sulphur (KCl40)	mg/kg	22		9 - 12
Cation Exch. Cap. (CEC)	cmol(+)/kg	9.9		>8
Calcium (Amm-acet.)	cmol(+)/kg	4.5		3 - 5
Magnesium (Amm-acet.)	cmol(+)/kg	3.0		1 - 2
Sodium (Amm-acet.)	cmol(+)/kg	1.20	Likely to be harmful to plant growth	< 0.7
Potassium (Amm-acet.)	cmol(+)/kg	1.10		
Aluminium (KCI)	cmol(+)/kg	<0.1		
Aluminium % of Cations	%	<1.0	There are no problems with Aluminium toxicity	< 5%



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Sample No 021552914

Version: 2







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Recommendation Report

Grower Name:	Goulburb Ab				
Sample No:	02155	2914			
Paddock Name:	SS3				
Sample Name:	SS3				
Sample Depth (cm)	0	То			

s 10 Nearest Town: E22 Test Code: Sample Type: Soil Sampling Date:

GOULBURN 08/05/2018

Analyte / Assay	Unit	Value	Very Low Marginal Optimum High Excess	Optimal
Grass Tetany Risk Index		0.15		
Calcium % of Cations	%	46.0	Not ideal for soil structure, check sodicity	60 - 85 %
Magnesium % of Cations	%	30.0	May affect dispersion in cultivated soils	< 25 %
Sodium % of Cations (ESP)	%	13.00	Moderate sodicity, dispersive soil likely	< 6.0 %
Potassium % of Cations	%	11.00		3-7 %
Calcium/Magnesium Ratio		1.5	If soil sodic, dispersion possible	> 2.0

The results reported pertain only to the sample submitted.

Analyses performed on soil dried at 40 degrees Celsius and ground to <2mm (excluding moisture assay)







	Nut	trien	t A	dvanta	age .	Advice	R]	Recoi	nmen	dati	on Re	epo	ort	
Grower Nar Sample No: Paddock Na Sample Nar Sample Dep	me: ame: me: oth (cm)	Goulbu 021552 SS3 SS3 0	rb Ab: 914 To	s 10			Nea Test San San	rest T Code ple T pling	own: e: ype: J Date:	GOULBUF E22 Soil 08/05/2018	RN B				
Sample Deta	Sample Details:														
Pasture: Proposed So Dairy Stockir Other Stock Cuts per yea	erprise (Crop): PASIDRE Activity (enterprise): Beef/Sheep sture: Existing Lucerne: sposed Sowing Method: Time of Sowing: ry Stocking Rate (cows/ha): Beef/sheep Stocking Rate (dse/ha): 10.00 ier Stock Type: Other Stocking Rate (dse/ha): 10.00 ts per year: Yield per Cut (t/ha) : 10.00														
Seed Produc Sample Dept	tion Type: h (cm) Frc	om:		0			Fo To	odder o:	Crop Type:			10			
						Recom	men	Idati	ions						
Product Recommenda	ation			Applicatio Rate (kg/h (Unless St	n a) ated)	Timing		Appli Meth	ication od	N kg/h	ia	P kg/ha		K kg/ha	S kg/ha
Total Nutrient	Applied														
This Recom	nmendati	on has b	een c	lone by:	And	drew Harborr	ne (19	5)					<u> </u>		
Other Elemen in recommend	its dation			Ca kg/ha	Mg kg/ha	Cu kg/ha	Z kg	n /ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe a kg/ł	na	Mn kg/ha	Si kg/ha
Total Nutrient	Applied														
Legend:	N:Nitro Mg:Mag B:Boro	ogen gnesium on		P : Phos Cu : Cop Fe : Iron	sphorus oper	K Z N	C:Pot In:Zin In:Ma	assiun ic angane	n ese	S : Sulţ Mo : Mo Si : Silic	ohur blybdenur con	n	Ca Co	a : Calcium o : Cobalt	





Gro Sam Pad San



Ν	utrient Advantage	Advice® Reco	mmendation Report
Grower Name:	Goulburb Abs	Nearest Town:	GOULBURN
Sample No:	021552914	Test Code:	E22
Paddock Name:	SS3	Sample Type:	Soil
Sample Name:	SS3	Sampling Date:	08/05/2018
Sample Depth (c	m) 0 To 10		

Comments

Chloride levels indicate a slight salt problem which may impact on plant productivity. Identifying the source of the salt problem and implementing remedial actions is recommended.

What is the soil "Phosphorus Environmental Risk Index"?

The Phosphorus Environmental Risk Index (PERI) is defined as the ratio between the amount of P present in the soil (Colwell P) and the capacity of that soil to retain P (PBI). As a soil becomes increasingly "saturated" with P two things will occur. First, the quantity of soluble P that can be lost from soils by surface runoff and by leaching through internal drainage into shallow groundwaters increases. Second, eroding soil particles are increasingly enriched in biologically available P and thus more likely to release P into waters when they are deposited as sediments in creeks, rivers, dams, and lakes

PERI - (Phosphorus Environmental Risk Index): This information is based on early research findings for a limited range of soils and climates and should be used as a guide only. Soil solution losses of P from this soil via internal drainage or run-off are likely to negatively impact the environment. Precautions need to be taken to prevent soil water draining directly to water bodies such as creeks, rivers, dams and lakes. Take appropriate actions to ensure runoff water does not drain into riparian areas. Phosphorus application, including materials such as manures, composts, bio-solids and organic by-products containing phosphorus, should be discontinued until the PERI falls to 0.65 or below. Monitor the situation through a routine soil sampling program.

Guideline Consideration for Nitrogen Use on Pastures

Grazing Management (mature pasture) is critical in maintaining a good grass density - graze to a minimum of 1200kgDM/ha (or 5cm in height) - over 1. grazing will cause ryegrass decline. Iax grazing will cause shading, tiller death, lower feed quality and density decline. The optimal time for nitrogen application is immediately following a grazing. Ryegrass should be grazed at 2.5-3 leaf stage (spring graze at 2.5 leaf stage) which corresponds with optimal white clover grazing. Phalaris grazing is set at 4-5 leaf stage.

Following a nitrogen application stock should be excluded from the paddock for a 3 week period to avoid nitrate poisoning.

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Pasture Composition plays a part in determining nitrogen responses - generally pastures with a high composition of improved grasses ie.ryegrass and low 2. to moderate composition of clover (up to 30%) will provide the better pasture response, as will pastures with minimal weeds, disease and insect pest activity.

Paddock fertility is very important in supporting a healthy pasture - ensure major nutrients, trace elements and soil ameliorates are addressed to improve 3. dry matter responses to nitrogen applications.

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Application Rates should be in a range of 30-50kgN/ha.

Time of year (season) causes variation in responses to nitrogen. Responses to perennial ryegrass can be as low as 5 kgDM/ha/kgN in the winter and up to 6. 25 kgDM/ha/kgN in the spring. Italian type ryegrasses tend to be more responsive to nitrogen than perennials. Forward thinking in predicting future gaps will allow nitrogen applications to be used to maximum efficiency ie. Aug 15 calving herd should have nitrogen applied on 1st July assuming leaf emergence every 15 days

Don't apply nitrogen if soil temperatures are below 5°C as ryegrass has stopped growing.

Cost of Dry Matter is the key consideration in determining whether nitrogen should be applied or not. Estimates on expected dry matter responses and 7. ulitisation coupled with the cost of nitrogen will provide a dry matter cost, this can then be compared to other feed alternative to see the value (or not) in using nitrogen. These costs will vary during the year with winter feed the most expensive.

Environment can be negatively impacted by poor nitrogen management. Don't apply close to waterways, or to paddocks that are waterlogged and grasses 8. are not growing

Utilisation - If the additional pasture Dry Matter grown as a result of applying Nitrogen can not be utilised, do not apply Nitrogen.

Follow the points listed above for best practice management.

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Nutrient Advantage Advice®

Recommendation Report

Goulburb Abs Mazemet Rd

Goulburn

NSW 2580

Report Print Date:	25/06/2018
Agent/Dealer:	
Advisor/Contact:	Andrew Harborne
Phone:	
Purchase Order No:	GL080518

Grower Name:	Goulburb Abs	Nearest Town:	GOULBURN
Sample No:	021552913	Test Code:	E22
Paddock Name:	SS4	Sample Type:	Soil
Sample Name:	SS4	Sampling Date:	08/05/2018
Sample Depth (cm)	0 To 10		

Analyte / Assay	Unit	Value	Very Low Marginal Optimum High Excess	Optimal
Soil Colour		Grey		
Soil Texture		Clay Loam		
pH (1:5 Water)		6.9	Slightly acidic	6.0 - 7.0
pH (1:5 CaCl2)		6.3	May vary depending on plant species	5.2 - 6.0
Electrical Conductivity (1:5 water)	dS/m	0.27	Not saline.	< 0.29
Electrical Conductivity (Sat. Ext.)	dS/m	2.2		>1.9
Chloride	mg/kg	110	Low and harmless to plant growth.	< 180
Organic Carbon (W&B)	%	2.0		2.3 - 5.3
Nitrate Nitrogen	mg/kg	67		25-30
Ammonium Nitrogen	mg/kg	3		10-15
Total Nitrogen (Kjeldahl)	%	0.25		
Phosphorus (Olsen)	mg/kg	81		
Phosphorus (Colwell)	mg/kg	270		30 - 40
Phosphorus Buffer Index		64	Low phosphorus fixation capacity	
Phosphorus Environmental Risk Index		4.22	Risk of P loss to environment	
Potassium (Colwell)	mg/kg	490		170 - 220
Sulphur (KCl40)	mg/kg	11		9 - 12
Cation Exch. Cap. (CEC)	cmol(+)/kg	9.2		
Calcium (Amm-acet.)	cmol(+)/kg	4.2		3 - 5
Magnesium (Amm-acet.)	cmol(+)/kg	2.9		1 - 2
Sodium (Amm-acet.)	cmol(+)/kg	1.00	Likely to be harmful to plant growth	< 0.7
Potassium (Amm-acet.)	cmol(+)/kg	1.00		
Aluminium (KCI)	cmol(+)/kg	<0.1		
Aluminium % of Cations	%	<1.0	There are no problems with Aluminium toxicity	< 5%



Analyses conducted by Nutrient Advantage Laboratory Services

For a copy of Laboratory Methods of Analysis please go to www.nutrientadvantage.com.au 8 South Road, Werribee VIC 3030



NATA Accreditation No: 11958 <u>Certificate of Analysis</u> is available upon request.

Tel: 1800 803 453 lab.feedback@incitecpivot.com.au

Email:





Nutrient Advantage Advice®

Recommendation Report

Grower Name:	Goulburb Ab
Sample No:	021552913
Paddock Name:	SS4
Sample Name:	SS4
Sample Depth (cm)	0 To

s 10 Nearest Town: E22 **Test Code:** Sample Type: Soil Sampling Date:

GOULBURN 08/05/2018

Analyte / Assay	Unit	Value	Very Low Marginal Optimum High Excess	Optimal
Grass Tetany Risk Index		0.14		
Calcium % of Cations	%	46.0	Not ideal for soil structure, check sodicity	60 - 85 %
Magnesium % of Cations	%	32.0	May affect dispersion in cultivated soils	< 25 %
Sodium % of Cations (ESP)	%	11.00	Moderate sodicity, dispersive soil likely	< 6.0 %
Potassium % of Cations	%	11.00		3-7%
Calcium/Magnesium Ratio		1.4	If soil sodic, dispersion possible	> 2.0

The results reported pertain only to the sample submitted.

Analyses performed on soil dried at 40 degrees Celsius and ground to <2mm (excluding moisture assay)







	Nut	rien	t A	dvanta	nge .	Advi	Ce®		Recor	nmen	datio	n Re	epo	ort	
Grower Nat Sample No Paddock N Sample Na Sample De	me: : ame: me: pth (cm)	Goulbu 021552 SS4 SS4 0	rb Ab: 913 To	s 10			Ni Te Si Si	earest 1 est Code ample 1 ampling	own: e: ype: JDate:	GOULBUF E22 Soil 08/05/2018	RN 3				
Sample Details: Activity (enterprise): Beef/Sheep Pasture: Existing Lucerne:															
Proposed So Dairy Stocki Other Stock Cuts per yea	Proposed Sowing Method:Time of Sowing:Dairy Stocking Rate (cows/ha):Beef/sheep Stocking Rate (dse/ha):10.00Other Stock Type:Other Stocking Rate (dse/ha):10.00Cuts per year:Yield per Cut (t/ha) :														
Seed Product	th (cm) Fro	m:		0				To:	Crop Type:			10			
						Reco	omme	endat	ions						
Product Recommend	ation			Application Rate (kg/ha (Unless St	n a) ated)	Timing		Appl Meth	ication od	N kg/h	a I	P ‹g/ha	kį	K g/ha	S kg/ha
Total Nutrien	t Applied														
This Recon	This Recommendation has been done by: Andrew Harborne (195)														
Other Elemer	nts dation			Ca kg/ha	Mg kg/ha	Cu kg/h	a	Zn kg/ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe kg/ł	na	Mn kg/ha	Si kg/ha
Total Nutrient	Applied														
Legend:	N : Nitro Mg : Mag B : Boro	gen gnesium n		P : Phos Cu : Cop Fe : Iron	phorus per		K :F Zn:Z Mn:	Potassiur Zinc Mangan	n ese	S : Sulp Mo : Mo Si : Silic	ohur Iybdenum on		Ca : Co :	: Calcium : Cobalt	







Nu	trier	nt A	dv	ntage Advice®	Reco	mmendation Report
Grower Name:	Goulb	urb Ab	s	Neares	t Town:	GOULBURN
Sample No:	02155	2913		Test Co	ode:	E22
Paddock Name:	SS4			Sample	e Type:	Soil
Sample Name:	SS4			Sampli	ng Date:	08/05/2018
Sample Depth (cm)	0	То	10			
Comments						

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Nutrient Advantage Advice®

Recommendation Report

Goulburb Abs Mazemet Rd

Goulburn

NSW 2580

Report Print Date:	25/06/2018
Agent/Dealer:	
Advisor/Contact:	Andrew Harborne
Phone:	
Purchase Order No:	GL080518

Grower Name:	Goulburb Abs	Nearest Town:	GOULBURN
Sample No:	021552912	Test Code:	E22
Paddock Name:	SS5	Sample Type:	Soil
Sample Name:	SS5	Sampling Date:	09/05/2018
Sample Depth (cm)	0 To 10		

Analyte / Assay	Unit	Value	Very Low Marginal Optimum High Excess	Optimal
Soil Colour		Grey		
Soil Texture		Clay Loam		
pH (1:5 Water)		8.2	Moderately alkaline	6.0 - 7.0
pH (1:5 CaCl2)		7.4	May vary depending on plant species	5.2 - 6.0
Electrical Conductivity (1:5 water)	dS/m	0.26	Not saline.	< 0.29
Electrical Conductivity (Sat. Ext.)	dS/m	2.1		<1.9
Chloride	mg/kg	110	Low and harmless to plant growth.	< 180
Organic Carbon (W&B)	%	2.4		2.3 - 5.3
Nitrate Nitrogen	mg/kg	9		25-30
Ammonium Nitrogen	mg/kg	5		10-15
Total Nitrogen (Kjeldahl)	%	0.21		
Phosphorus (Olsen)	mg/kg	129		
Phosphorus (Colwell)	mg/kg	280		31 - 40
Phosphorus Buffer Index		70	Low phosphorus fixation capacity	
Phosphorus Environmental Risk Index		4.00	Risk of P loss to environment	
Potassium (Colwell)	mg/kg	300		170 - 220
Sulphur (KCl40)	mg/kg	8		9 - 12
Cation Exch. Cap. (CEC)	cmol(+)/kg	12.1		>8
Calcium (Amm-acet.)	cmol(+)/kg	7.4		3 - 5
Magnesium (Amm-acet.)	cmol(+)/kg	2.8		1 - 2
Sodium (Amm-acet.)	cmol(+)/kg	1.30	Likely to be harmful to plant growth	< 0.7
Potassium (Amm-acet.)	cmol(+)/kg	0.66		0.4-0.6
Aluminium (KCI)	cmol(+)/kg	<0.1		
Aluminium % of Cations	%	<1.0	There are no problems with Aluminium toxicity	< 5%



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Incitec Pivot

NATA Accreditation No: Certificate of Analysis is available upon request.

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8 South Road, Werribee VIC 3030 1800 803 453 Tel:

lab.feedback@incitecpivot.com.au

Sample No 021552912

Version: 2

Email:







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10

Recommendation Report

Grower Name:	Goulburb Abs
Sample No:	021552912
Paddock Name:	SS5
Sample Name:	SS5
Sample Depth (cm)	0 To

Nearest Town:GOULBURNTest Code:E22Sample Type:SoilSampling Date:09/05/2018

Sample Type: Soil Sampling Date: 09/05/2018

Analyte / Assay	Unit	Value	Very Low	Marginal	Optimum	High	Excess	Optimal
Grass Tetany Risk Index		0.07		- - - -	- - - -			
Calcium % of Cations	%	61.0	Satisfactory	y for soil sti	ucture, che	ck sodici		60 - 85 %
Magnesium % of Cations	%	23.0	Stable soil	structure lil	kely, check s	sodicity		< 25 %
Sodium % of Cations (ESP)	%	11.00	Moderate s	odicity, dis	persive soil	likely		< 6.0 %
Potassium % of Cations	%	5.40						3-7%
Calcium/Magnesium Ratio		2.6	Stable soil	structure lil	kely, check s	sodicity		> 2.0

The results reported pertain only to the sample submitted.

Analyses performed on soil dried at 40 degrees Celsius and ground to <2mm (excluding moisture assay)







	Nut	trien	t A	dvanta	age .	Advi	Ce®		Recor	nmen	datio	n Rej	port	
Grower Na Sample No Paddock N Sample Na Sample Do	ame: o: Name: ame: epth (cm)	Goulbu 021552 SS5 SS5 0	rb Abs 912 To	s 10			N Ti S S	learest 1 est Code ample 1 ampling	ōwn: e: ype: y Date:	GOULBUF E22 Soil 09/05/2018	RN 3			
Sample Det Enterprise Pasture: Proposed S	Sample Details: Activity (enterprise): Beef/Sheep Enterprise (Crop): PASTURE Lucerne: Pasture: Existing Lucerne: Proposed Sowing Method: Time of Sowing:													
Dairy Stock Other Stock Cuts per ye Seed Produ Sample Dep	Dairy Stocking Rate (cows/ha): Beef/sheep Stocking Rate (dse/ha): 10.00 Other Stock Type: Other Stocking Rate (dse/ha): 10.00 Cuts per year: Yield per Cut (t/ha) : 10.00 Seed Production Type: Fodder Crop Type: 10.00 Sample Depth (cm) From: 0 To: 10.00													
						Reco	omm	endat	ions					
Product Recomment	dation			Application Rate (kg/ha (Unless St	n a) ated)	Timing		Appl Meth	ication od	N kg/h	a k	P g/ha	K kg/ha	S kg/ha
Total Nutrie	nt Applied													
This Reco	mmendati	on has b	een d	lone by:	And	drew Har	borne ((195)						
Other Eleme	ents ndation			Ca kg/ha	Mg kg/ha	Cu kg/ł	na	Zn kg/ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe kg/ha	Mn kg/ha	Si kg/ha
Total Nutrier	nt Applied													
Legend:	N : Nitro Mg : Mag B : Boro	igen gnesium in		P : Phos Cu : Cop Fe : Iron	sphorus oper		K : I Zn : Mn :	Potassiur Zinc Mangan	n ese	S : Sulp Mo : Mo Si : Silic	ohur lybdenum on		Ca : Calciur Co : Cobalt	1







Nu	trier	nt A	dv	antage Advice®	Reco	mmendation Report
Grower Name:	Goulb	urb Ab	s	Neares	t Town:	GOULBURN
Sample No:	02155	52912		Test Co	ode:	E22
Paddock Name:	SS5			Sample	e Type:	Soil
Sample Name:	SS5			Sampl	ing Date:	09/05/2018
Sample Depth (cm)	0	То	10			
				Commen	ts	

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Nutrient Advantage Advice®

Recommendation Report

Goulburb Abs Mazemet Rd

Goulburn

NSW 2580

Report Print Date:	25/06/2018
Agent/Dealer:	
Advisor/Contact:	Andrew Harborne
Phone:	
Purchase Order No:	GL080518

Grower Name:	Goulburb Abs	Nearest Town: G	OULBURN
Sample No:	021552911	Test Code: E2	22
Paddock Name:	SS6	Sample Type: So	oil
Sample Name:	SS6	Sampling Date: 08	3/05/2018
Sample Depth (cm)	0 To 10		

Analyte / Assay	Unit	Value	Very Low	Marginal	Optimum	High	Excess	Optimal
Soil Colour		Brown			- - - -			
Soil Texture		Clay Loam			: : :			
pH (1:5 Water)		7.6	Slightly alka	aline				6.0 - 7.0
pH (1:5 CaCl2)		7.1	May vary d	epending c	n plant spe	cies		5.2 - 6.0
Electrical Conductivity (1:5 water)	dS/m	0.16	Not saline.		, , , ,			< 0.29
Electrical Conductivity (Sat. Ext.)	dS/m	1.3						<1.9
Chloride	mg/kg	32	Low and ha	rmless to	plant growth			< 180
Organic Carbon (W&B)	%	1.9						2.3 - 5.3
Nitrate Nitrogen	mg/kg	21				· · · · · · · · · · · · · · · · · · ·		25-30
Ammonium Nitrogen	mg/kg	3						10-15
Total Nitrogen (Kjeldahl)	%	0.18						
Phosphorus (Olsen)	mg/kg	31						
Phosphorus (Colwell)	mg/kg	57						27 - 35
Phosphorus Buffer Index		34	Very low ph	osphorus	ixation capa	acity		
Phosphorus Environmental Risk Index		1.68	Possible ris	k of P loss	to environn	nent		
Potassium (Colwell)	mg/kg	280						170 - 220
Sulphur (KCl40)	mg/kg	8						9 - 12
Cation Exch. Cap. (CEC)	cmol(+)/kg	9.1						>8
Calcium (Amm-acet.)	cmol(+)/kg	7.5						3 - 5
Magnesium (Amm-acet.)	cmol(+)/kg	1.0						1 - 2
Sodium (Amm-acet.)	cmol(+)/kg	0.11	Low risk of	being harn	ful to plant	growth		< 0.7
Potassium (Amm-acet.)	cmol(+)/kg	0.54			1 1 1			
Aluminium (KCI)	cmol(+)/kg	<0.1			1 1 1			
Aluminium % of Cations	%	<1.0	There are r	o problem	s with Alumi	nium toxici	ty	< 5%



Analyses conducted by Nutrient Advantage Laboratory Services

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Incitec Pivot

NATA Accreditation No: 11958 <u>Certificate of Analysis</u> is available upon request. 8 South Road, Werribee VIC 3030 Tel: 1800 803 453

lab.feedback@incitecpivot.com.au

Sample No 021552911

Version: 2

Email:







10

Recommendation Report

Grower Name:	Goulbu	urb Abs
Sample No:	02155	2911
Paddock Name:	SS6	
Sample Name:	SS6	
Sample Depth (cm)	0	То

Nearest Town: GOULBURN E22 Test Code: Soil Sample Type: 08/05/2018 Sampling Date:

Analyte / Assay	Unit	Value	Very Low Marginal Optimum High Excess	Optimal
Grass Tetany Risk Index		0.06		
Calcium % of Cations	%	82.0	Satisfactory for soil structure, check sodici	60 - 85 %
Magnesium % of Cations	%	11.0	Stable soil structure likely, check sodicity	< 25 %
Sodium % of Cations (ESP)	%	1.20	Non sodic soil, stable soil structure likely	< 6.0 %
Potassium % of Cations	%	5.90		3-7 %
Calcium/Magnesium Ratio		7.5	Stable soil structure likely, check sodicity	> 2.0

The results reported pertain only to the sample submitted.

Analyses performed on soil dried at 40 degrees Celsius and ground to <2mm (excluding moisture assay)







	Nu	trien	t A	dvanta	nge .	Advic	e ®		Recor	nmen	datio	on Re	epo	ort	
Grower Na Sample No Paddock N Sample Na Sample De	ame: o: Name: ame: epth (cm)	Goulbu 021552 SS6 SS6 0	rb Abs 911 To	10			Near Test Sam Sam	rest To Code ople Ty opling	own: :: /pe: Date:	GOULBUF E22 Soil 08/05/2018	RN B				
Sample Details: Enterprise (Crop): PASTURE Pasture: Existing Proposed Sowing Method: Time of Sowing: Dairy Stocking Rate (cows/ha): Beef/sheep Stocking Rate (dse/ha): Other Over Large Difference															
Cuts per ye Seed Produ Sample Dep	ar: action Type: oth (cm) Fro	om:		Other Stocking Rate (dse/ha): Yield per Cut (t/ha) : Fodder Crop Type: 0 To:											
						Recon	nmen	dati	ons						
Product Recomment	dation			Applicatio Rate (kg/h (Unless St	n a) ated)	Timing		Applie Metho	cation od	N kg/h	ia	P kg/ha	k	K g/ha	S kg/ha
Total Nutrie	nt Applied														
This Reco	mmendati	on has b	een d	lone by:	And	lrew Harbo	rne (19	5)			ľ				
Other Eleme	ents ndation			Ca kg/ha	Mg kg/ha	Cu kg/ha	Zr kg/	n ′ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe kg/f	na	Mn kg/ha	Si kg/ha
Total Nutrien	t Applied														
Legend:	N : Nitro Mg : Mag B : Boro	ogen gnesium on		P : Phos Cu : Cop Fe : Iron	sphorus		K : Pota Zn : Zin Mn : Ma	assium c angane	ı se	S : Sulp Mo : Mo Si : Silic	ohur blybdenun con	1	Ca Co	: Calcium : Cobalt	







Nu	trient Advantage	Advice® Reco	mmendation Report
Grower Name:	Goulburb Abs	Nearest Town:	GOULBURN
Sample No:	021552911	Test Code:	E22
Paddock Name:	SS6	Sample Type:	Soil
Sample Name:	SS6	Sampling Date:	08/05/2018
Sample Depth (cm)	0 To 10		

Comments

What is the soil "Phosphorus Environmental Risk Index"?

The Phosphorus Environmental Risk Index (PERI) is defined as the ratio between the amount of P present in the soil (Colwell P) and the capacity of that soil to retain P (PBI). As a soil becomes increasingly "saturated" with P two things will occur. First, the quantity of soluble P that can be lost from soils by surface runoff and by leaching through internal drainage into shallow groundwaters increases. Second, eroding soil particles are increasingly enriched in biologically available P and thus more likely to release P into waters when they are deposited as sediments in creeks, rivers, dams, and lakes.

PERI - (Phosphorus Environmental Risk Index): This interpretation is based on early research findings for a limited range of soils and climates and should be used as a guide only. Losses of water soluble P from this soil via internal drainage or run-off could negatively impact the environment. To minimise the risks of this occurring, precautions need to be taken to prevent soil water draining directly into off-farm water bodies such as creeks, rivers, dams and lakes. Phosphorus application, including materials such as manures, composts, bio-solids and organic by-products containing phosphorus, should be reviewed to prevent the PERI rising above 2.0. Monitor the situation through a routine soil sampling program.

Guideline Consideration for Nitrogen Use on Pastures

1. Grazing Management (mature pasture) is critical in maintaining a good grass density - graze to a minimum of 1200kgDM/ha (or 5cm in height) - over grazing will cause ryegrass decline, lax grazing will cause shading, tiller death, lower feed quality and density decline. The optimal time for nitrogen application is immediately following a grazing. Ryegrass should be grazed at 2.5-3 leaf stage (spring graze at 2.5 leaf stage) which corresponds with optimal white clover grazing. Phalaris grazing is set at 4-5 leaf stage.

Following a nitrogen application stock should be excluded from the paddock for a 3 week period to avoid nitrate poisoning.

Grazing Management (establishing pasture). Phosphorus should be applied close to the seed at sow, maximum nitrogen safe seed rate is 10kgN/ha with the seed. Lightly graze pasture 4-6 weeks post emergence (or when seedlings won't pull from soil) and then apply an application of nitrogen to encourage tillering.

2. Pasture Composition plays a part in determining nitrogen responses - generally pastures with a high composition of improved grasses ie.ryegrass and low to moderate composition of clover (up to 30%) will provide the better pasture response, as will pastures with minimal weeds, disease and insect pest activity.

3. Paddock fertility is very important in supporting a healthy pasture - ensure major nutrients, trace elements and soil ameliorates are addressed to improve dry matter responses to nitrogen applications.

4. **Moisture** is probably the major limiting factor to nitrogen responses - ensure the soil has adequate soil moisture to sustain production and following a broadcast nitrogen application at least 5mm (light soil) or 10mm (heavy soil) rainfall event or irrigation follows within 2 days of application. Green Urea can be consider if volatilisation is considered to be an issue.

5. Application Rates should be in a range of 30-50kgN/ha.

6. Time of year (season) causes variation in responses to nitrogen. Responses to perennial ryegrass can be as low as 5 kgDM/ha/kgN in the winter and up to 25 kgDM/ha/kgN in the spring. Italian type ryegrasses tend to be more responsive to nitrogen than perennials. Forward thinking in predicting future gaps will allow nitrogen applications to be used to maximum efficiency ie. Aug 15 calving herd should have nitrogen applied on 1st July assuming leaf emergence every 15 days.

Don't apply nitrogen if soil temperatures are below 5°C as ryegrass has stopped growing.

7. Cost of Dry Matter is the key consideration in determining whether nitrogen should be applied or not. Estimates on expected dry matter responses and ulitisation coupled with the cost of nitrogen will provide a dry matter cost, this can then be compared to other feed alternative to see the value (or not) in using nitrogen. These costs will vary during the year with winter feed the most expensive.

8. Environment can be negatively impacted by poor nitrogen management. Don't apply close to waterways, or to paddocks that are waterlogged and grasses are not growing.

9. Utilisation - If the additional pasture Dry Matter grown as a result of applying Nitrogen can not be utilised, do not apply Nitrogen.

Follow the points listed above for best practice management.

Disclaimer: Laboratory analyses and fertiliser recommendations are made in good faith, based on the best technical information available as at the date of this report. Incitec Pivot Limited, its officers, employees, consultants, Agents and Dealers do not accept any liability whatsoever arising from or in connection with the analytical results, interpretations and recommendations provided, and the client takes the analytical results, interpretations and recommendations on these terms. In respect of liability which cannot be excluded by law, Incitec Pivot's liability is restricted to the re-supply of the laboratory analysis or the cost of having the analysis re-supplied.







Nutrient Advantage Advice®

Recommendation Report

Goulburb Abs Mazemet Rd

Goulburn

NSW 2580

Report Print Date:	25/06/2018
Agent/Dealer:	
Advisor/Contact:	Andrew Harborne
Phone:	
Purchase Order No:	GL080518

Grower Name:	Goulburb Abs	Nearest Town:	GOULBURN
Sample No:	021552910	Test Code:	E22
Paddock Name:	SS7	Sample Type:	Soil
Sample Name:	SS7	Sampling Date:	08/05/2018
Sample Depth (cm)	0 To 10		

Analyte / Assay	Unit	Value	Very Low Marginal Optimum High Excess	Optimal
Soil Colour		Grey		
Soil Texture		Clay Loam		
pH (1:5 Water)		8.2	Moderately alkaline	6.0 - 7.0
pH (1:5 CaCl2)		7.4	May vary depending on plant species	5.2 - 6.0
Electrical Conductivity (1:5 water)	dS/m	0.36	Slightly saline.	< 0.29
Electrical Conductivity (Sat. Ext.)	dS/m	2.9		<1.9
Chloride	mg/kg	210	Slightly harmful to plant growth	< 180
Organic Carbon (W&B)	%	2.8		2.3 - 5.3
Nitrate Nitrogen	mg/kg	19		25-30
Ammonium Nitrogen	mg/kg	15		10-15
Total Nitrogen (Kjeldahl)	%	0.26		
Phosphorus (Olsen)	mg/kg	130		
Phosphorus (Colwell)	mg/kg	320		32 - 42
Phosphorus Buffer Index		85	Moderately low phosphorus fixation capacity	
Phosphorus Environmental Risk Index		3.76	Risk of P loss to environment	
Potassium (Colwell)	mg/kg	290		170 - 220
Sulphur (KCl40)	mg/kg	11		9 - 12
Cation Exch. Cap. (CEC)	cmol(+)/kg	12.5		>8
Calcium (Amm-acet.)	cmol(+)/kg	7.1		3 - 5
Magnesium (Amm-acet.)	cmol(+)/kg	3.1		1 - 2
Sodium (Amm-acet.)	cmol(+)/kg	1.70	Likely to be harmful to plant growth	< 0.7
Potassium (Amm-acet.)	cmol(+)/kg	0.56		
Aluminium (KCI)	cmol(+)/kg	<0.1		
Aluminium % of Cations	%	<1.0	There are no problems with Aluminium toxicity	<5%



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NATA Accreditation No: 11958 <u>Certificate of Analysis</u> is available upon request.

Sample No 021552910

Version: 2







10

Recommendation Report

Grower Name:	Goulburb Abs			
Sample No:	021552910			
Paddock Name:	SS7			
Sample Name:	SS7			
Sample Depth (cm)	0 To			

Nearest Town:GOULBURNTest Code:E22Sample Type:SoilSampling Date:08/05/2018

Analyte / Assay	Unit	Value	Very Low Marginal Optimum High Excess	Optimal
Grass Tetany Risk Index		0.06		
Calcium % of Cations	%	57.0	Marginal for soil structure, check sodicity	60 - 85 %
Magnesium % of Cations	%	25.0	May affect dispersion in cultivated soils	< 25 %
Sodium % of Cations (ESP)	%	14.00	Moderate sodicity, dispersive soil likely	< 6.0 %
Potassium % of Cations	%	4.50		3-7%
Calcium/Magnesium Ratio		2.3	Stable soil structure likely, check sodicity	> 2.0
		•		

The results reported pertain only to the sample submitted.

Analyses performed on soil dried at 40 degrees Celsius and ground to <2mm (excluding moisture assay)







	Nut	trien	t A	dvanta	age .	Advice	R		Recoi	nmen	dati	ion]	Rep	ort	
Grower Nar Sample No Paddock Na Sample Nar Sample De	me: ame: me: pth (cm)	Goulbu 021552 SS7 SS7 0	rb Abs 910 To	s 10			Nea Test San San	rest T Code ple T pling	Γown: e: γpe: g Date:	GOULBUF E22 Soil 08/05/2018	RN B				
Sample Deta Enterprise (C Pasture: Proposed Sc	ils: Crop): owing Meth	nod:		PASTURE Existing			A Lu Ti	ctivity ucerne me of	(enterprise e: Sowing:	e):	.(1).	Beef	/Sheep		
Dairy Stocki Other Stock Cuts per yea Seed Produc Sample Dept	ng Rate (co Type: r: tion Type: th (cm) Fro	ows/ha): om:	Beef/sheep Stocking Rate (dse/ha): 10.00 Other Stocking Rate (dse/ha): Yield per Cut (t/ha) : Fodder Crop Type: 10 0 To: 10												
	Recommendations														
Product Recommenda	ation			Applicatio Rate (kg/h (Unless St	n a) ated)	Timing		Appl Meth	ication od	N kg/h	a	P kg/ha		K kg/ha	S kg/ha
Total Nutrien	t Applied														
This Recon	nmendati	on has b	een d	lone by:	And	drew Harbor	ne (19	5)							
Other Elemer	nts dation			Ca kg/ha	Mg kg/ha	Cu kg/ha	Z kg	n /ha	Mo gm/ha	Co gm/ha	B kg/ł	na	Fe kg/ha	Mn kg/ha	Si kg/ha
Total Nutrient	Applied														
Legend:	N : Nitro Mg : Mag B : Boro	igen gnesium n		P : Phos Cu : Cop Fe : Iron	sphorus oper		K : Pot Zn : Zir Vn : Ma	assiur ic angan	n ese	S : Sulp Mo : Mo Si : Silic	ohur olybdenu con	ım	C	Ca : Calciun Co : Cobalt	1







Nu	trient Advantage A	dvice [®] Reco	mmendation Report
Grower Name:	Goulburb Abs	Nearest Town:	GOULBURN
Sample No:	021552910	Test Code:	E22
Paddock Name:	SS7	Sample Type:	Soil
Sample Name:	SS7	Sampling Date:	08/05/2018
Sample Depth (cm)	0 To 10		

Comments

Chloride levels indicate a slight salt problem which may impact on plant productivity. Identifying the source of the salt problem and implementing remedial actions is recommended.

What is the soil "Phosphorus Environmental Risk Index"?

The Phosphorus Environmental Risk Index (PERI) is defined as the ratio between the amount of P present in the soil (Colwell P) and the capacity of that soil to retain P (PBI). As a soil becomes increasingly "saturated" with P two things will occur. First, the quantity of soluble P that can be lost from soils by surface runoff and by leaching through internal drainage into shallow groundwaters increases. Second, eroding soil particles are increasingly enriched in biologically available P and thus more likely to release P into waters when they are deposited as sediments in creeks, rivers, dams, and lakes

PERI - (Phosphorus Environmental Risk Index): This information is based on early research findings for a limited range of soils and climates and should be used as a guide only. Soil solution losses of P from this soil via internal drainage or run-off are likely to negatively impact the environment. Precautions need to be taken to prevent soil water draining directly to water bodies such as creeks, rivers, dams and lakes. Take appropriate actions to ensure runoff water does not drain into riparian areas. Phosphorus application, including materials such as manures, composts, bio-solids and organic by-products containing phosphorus, should be discontinued until the PERI falls to 0.65 or below. Monitor the situation through a routine soil sampling program.

Guideline Consideration for Nitrogen Use on Pastures

Grazing Management (mature pasture) is critical in maintaining a good grass density - graze to a minimum of 1200kgDM/ha (or 5cm in height) - over 1. grazing will cause ryegrass decline. Iax grazing will cause shading, tiller death, lower feed quality and density decline. The optimal time for nitrogen application is immediately following a grazing. Ryegrass should be grazed at 2.5-3 leaf stage (spring graze at 2.5 leaf stage) which corresponds with optimal white clover grazing. Phalaris grazing is set at 4-5 leaf stage.

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Grazing Management (establishing pasture). Phosphorus should be applied close to the seed at sow, maximum nitrogen safe seed rate is 10kgN/ha with the seed. Lightly graze pasture 4-6 weeks post emergence (or when seedlings won't pull from soil) and then apply an application of nitrogen to encourage tillering

Pasture Composition plays a part in determining nitrogen responses - generally pastures with a high composition of improved grasses ie.ryegrass and low 2. to moderate composition of clover (up to 30%) will provide the better pasture response, as will pastures with minimal weeds, disease and insect pest activity.

Paddock fertility is very important in supporting a healthy pasture - ensure major nutrients, trace elements and soil ameliorates are addressed to improve 3. dry matter responses to nitrogen applications.

Moisture is probably the major limiting factor to nitrogen responses - ensure the soil has adequate soil moisture to sustain production and following a 4. broadcast nitrogen application at least 5mm (light soil) or 10mm (heavy soil) rainfall event or irrigation follows within 2 days of application. Green Urea can be consider if volatilisation is considered to be an issue.

Application Rates should be in a range of 30-50kgN/ha.

Time of year (season) causes variation in responses to nitrogen. Responses to perennial ryegrass can be as low as 5 kgDM/ha/kgN in the winter and up to 6. 25 kgDM/ha/kgN in the spring. Italian type ryegrasses tend to be more responsive to nitrogen than perennials. Forward thinking in predicting future gaps will allow nitrogen applications to be used to maximum efficiency ie. Aug 15 calving herd should have nitrogen applied on 1st July assuming leaf emergence every 15 days

Don't apply nitrogen if soil temperatures are below 5°C as ryegrass has stopped growing.

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Environment can be negatively impacted by poor nitrogen management. Don't apply close to waterways, or to paddocks that are waterlogged and grasses 8. are not growing

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Nutrient Advantage Advice®

Recommendation Report

Goulburb Abs Mazemet Rd

Goulburn

NSW 2580

Report Print Date: 25/06/2018 Agent/Dealer: Advisor/Contact: Andrew Harborne Phone: **Purchase Order No:** GL080518

Goulburb Abs Grower Name: Neare Sample No: 021552909 Test C SS8 Paddock Name: Samp SS8 Sample Name: Samp 0 10 Sample Depth (cm) То

GOULBUF
E22
Soil
08/05/2018

RN 3

Analyte / Assay	Unit	Value	Very Low Marginal Optimum High Excess	Optimal
Soil Colour		Brown		
Soil Texture		Clay Loam		
pH (1:5 Water)		6.0	Moderately acidic	6.0 - 7.0
pH (1:5 CaCl2)		5.4	May vary depending on plant species	5.2 - 6.0
Electrical Conductivity (1:5 water)	dS/m	0.18	Not saline.	< 0.29
Electrical Conductivity (Sat. Ext.)	dS/m	1.4		<1.9
Chloride	mg/kg	71	Low and harmless to plant growth.	< 180
Organic Carbon (W&B)	%	2.9		2.3 - 5.3
Nitrate Nitrogen	mg/kg	43		25-30
Ammonium Nitrogen	mg/kg	7		10-15
Total Nitrogen (Kjeldahl)	%	0.24		
Phosphorus (Olsen)	mg/kg	9		
Phosphorus (Colwell)	mg/kg	21		33 - 43
Phosphorus Buffer Index		94	Moderately low phosphorus fixation capacity	
Phosphorus Environmental Risk Index		0.22	Low risk of P loss to the environment	
Potassium (Colwell)	mg/kg	290		170 - 220
Sulphur (KCl40)	mg/kg	19		9 - 12
Cation Exch. Cap. (CEC)	cmol(+)/kg	6.4		
Calcium (Amm-acet.)	cmol(+)/kg	4.4		3 - 5
Magnesium (Amm-acet.)	cmol(+)/kg	1.3		1 - 2
Sodium (Amm-acet.)	cmol(+)/kg	0.26	Low risk of being harmful to plant growth	< 0.7
Potassium (Amm-acet.)	cmol(+)/kg	0.37		
Aluminium (KCI)	cmol(+)/kg	<0.1		
Aluminium % of Cations	%	<1.0	There are no problems with Aluminium toxicity	<5%



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Sample No 021552909

11958 NATA Accreditation No: Certificate of Analysis is available upon request.

Version: 4

Email:







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Recommendation Report

Grower Name:	Goulburb Abs			
Sample No:	021552909			
Paddock Name:	SS8			
Sample Name:	SS8			
Sample Depth (cm)	0 To			

Nearest Town: Test Code: Sample Type: Sampling Date: GOULBURN E22 Soil 08/05/2018

Analyte / Assay	Unit	Value	Very Low Marginal Optimum High Excess	Optimal
Grass Tetany Risk Index		0.07		
Calcium % of Cations	%	70.0	Satisfactory for soil structure, check sodici	60 - 85 %
Magnesium % of Cations	%	21.0	Stable soil structure likely, check sodicity	< 25%
Sodium % of Cations (ESP)	%	4.00	Non sodic soil, stable soil structure likely	< 6.0 %
Potassium % of Cations	%	5.80		3-7%
Calcium/Magnesium Ratio		3.4	Stable soil structure likely, check sodicity	> 2.0

The results reported pertain only to the sample submitted.

Analyses performed on soil dried at 40 degrees Celsius and ground to <2mm (excluding moisture assay)





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Nut	rient	Ac	lvanta	ige /	Advi	Ce®		Recoi	nmen	datio	on Re	ep	ort	
Grower Name: Sample No: Paddock Name: Sample Name: Sample Depth (cm)	Goulburt 0215529 SS8 SS8 0	o Abs 09 To	10			N Ti S S	learest T est Cod ample T ampling	Fown: e: Type: g Date:	GOULBUF E22 Soil 08/05/2018	RN 3				
Sample Details: Enterprise (Crop): PASTURE Activity (enterprise): Beef/Sheep Pasture: Existing Lucerne: Proposed Sowing Method: Time of Sowing: Dairy Stocking Rate (cows/ha): Beef/sheep Stocking Rate (dse/ha): 10.00 Other Stock Type: Other Stocking Rate (dse/ha): Yield per Cut (t/ha) :								еер						
Seed Production Type: Sample Depth (cm) Fro	m:		0				Fodder To:	Crop Type:			10			
	Recommendations													
Product Application Recommendation Rate (kg/ha) (Unless Stated)		ı ı) ated)	Timing Applic Metho		ication od	N kg/h	a	P kg/ha		K kg/ha	S kg/ha			
Total Nutrient Applied														
This Recommendation	on has be	en do	one by:	And	Irew Har	borne (195)					<u> </u>		
Other Elements Ca Mg in recommendation kg/ha kg/		Mg kg/ha	Cu a kg/ha		Zn kg/ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe kg/ł	na	Mn kg/ha	Si kg/ha		
Total Nutrient Applied														
Legend: N : Nitro Mg : Mag B : Boro	N : Nitrogen P : Phosphoru Mg : Magnesium Cu : Copper B : Boron Fe : Iron			phorus per	K :Potassium Zn : Zinc Mn : Manganese				S : Sulphur Mo : Molybdenum Si : Silicon			Ca Co	a : Calcium o : Cobalt	







Nut	trier	nt A	dv	ntage Advice® Reco	Recommendation Report				
Grower Name:	Goulb	urb Ab	s	Nearest Town:	GOULBURN				
Sample No:	02155	2909		Test Code:	E22				
Paddock Name:	SS8			Sample Type:	Soil				
Sample Name:	SS8			Sampling Date:	08/05/2018				
Sample Depth (cm)	0	То	10						
				Comments					

What is the soil "Phosphorus Environmental Risk Index"?

The Phosphorus Environmental Risk Index (PERI) is defined as the ratio between the amount of P present in the soil (Colwell P) and the capacity of that soil to retain P (PBI). As a soil becomes increasingly "saturated" with P two things will occur. First, the quantity of soluble P that can be lost from soils by surface runoff and by leaching through internal drainage into shallow groundwaters increases. Second, eroding soil particles are increasingly enriched in biologically available P and thus more likely to release P into waters when they are deposited as sediments in creeks, rivers, dams, and lakes.

PERI - (Phosphorus Environmental Risk Index): This information is based on early research findings for a limited range of soils and climates and should be used as a guide only. Soil solution losses of P from this soil via internal drainage or run-off are not likely to negatively impact the environment. However, precautions need to be taken to prevent soil water draining directly to water bodies such as creeks, rivers, dams and lakes. If the Phosphorus Environmental Risk Index is approaching 0.65, monitor by soil testing again after 2 - 3 more P applications particularly if P applied is significantly greater than P removed in produce. Extra care should be taken on soils with a PBI of less than 15.

Best practice fertiliser application to pastures can minimise nutrient loss and reduce the impact on the environment. Current best practices for phosphorus fertiliser for dryland and irrigated pastures are:

- Avoid applying fertiliser when ground cover is less than 70%, or land is overgrazed or affected by drought.
- Prevent fertiliser entering waterways and water storages by keeping well clear during application.
- Avoid applying fertiliser to waterlogged soils or soils likely to flood soon after application.
- On dryland pastures do not apply fertiliser if heavy rain is forecast within 7 days.
- On irrigated pastures apply after watering as soil moisture will be adequate to move P into the topsoil.
- For the first irrigation after P application, short water to minimise losses in drainage water
- The more time between application and the next runoff event the smaller the amount of phosphorus lost
- · Locate fertiliser storage areas away from potential run-off areas.

Keep phosphorus on the farm - phosphorus fertilisers (with no nitrogen) do not need to be washed in. Even in dry conditions (eg summer), phosphorus fertiliser granules absorb moisture from the soil and air. As water moves in, phosphorus moves out of the granules and into the soil, where it locks onto the soil particles. Within a week most of the phosphorus has moved into the soil, leaving the granule carrier material and a bit of insoluble phosphorus on the soil surface.







Nutrient Advantage Advice®	
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Recommendation Report

Grower Name:	Goulbu	urb Ab	s	Nearest Town: GOULBURN
Sample No:	02155	2909		Test Code: E22
Paddock Name:	SS8			Sample Type: Soil
Sample Name:	SS8			Sampling Date: 08/05/2018
Sample Depth (cm)	0	То	10	

Guideline Consideration for Nitrogen Use on Pastures

1. Grazing Management (mature pasture) is critical in maintaining a good grass density - graze to a minimum of 1200kgDM/ha (or 5cm in height) - over grazing will cause ryegrass decline, lax grazing will cause shading, tiller death, lower feed quality and density decline. The optimal time for nitrogen application is immediately following a grazing. Ryegrass should be grazed at 2.5-3 leaf stage (spring graze at 2.5 leaf stage) which corresponds with optimal white clover grazing. Phalaris grazing is set at 4-5 leaf stage.

Following a nitrogen application stock should be excluded from the paddock for a 3 week period to avoid nitrate poisoning.

Grazing Management (establishing pasture). Phosphorus should be applied close to the seed at sow, maximum nitrogen safe seed rate is 10kgN/ha with the seed. Lightly graze pasture 4-6 weeks post emergence (or when seedlings won't pull from soil) and then apply an application of nitrogen to encourage tillering.

2. Pasture Composition plays a part in determining nitrogen responses - generally pastures with a high composition of improved grasses ie.ryegrass and low to moderate composition of clover (up to 30%) will provide the better pasture response, as will pastures with minimal weeds, disease and insect pest activity.

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5. Application Rates should be in a range of 30-50kgN/ha.

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Nutrient Advantage Advice®

Recommendation Report

Goulburb Abs Mazemet Rd

Report Print Date:25/06/2018Agent/Dealer:Andrew HarborneAdvisor/Contact:Andrew HarbornePhone:GL080518

NSW 2580

Goulburn

Grower Name:	Goulburb Abs	Nearest Town: GOU	ULBURN
Sample No:	021552908	Test Code: E22	
Paddock Name:	SS9	Sample Type: Soil	
Sample Name:	SS9	Sampling Date: 08/0)5/2018
Sample Depth (cm)	0 To 10		

Analyte / Assay	Unit	Value	Very Low	Marginal	Optimum	High	Excess	Optimal
Soil Colour		Brown						
Soil Texture		Clay						
pH (1:5 Water)		5.7	Moderately	acidic				6.0 - 7.0
pH (1:5 CaCl2)		4.9	May vary d	epending o	n plant spe	cies		5.2 - 6.0
Electrical Conductivity (1:5 water)	dS/m	0.06	Not saline.					< 0.4
Electrical Conductivity (Sat. Ext.)	dS/m	0.4						<1.9
Chloride	mg/kg	37	Low and ha	irmless to p	lant growth			<180
Organic Carbon (W&B)	%	2.4						2.3 - 5.3
Nitrate Nitrogen	mg/kg	2						25-30
Ammonium Nitrogen	mg/kg	4						10-15
Total Nitrogen (Kjeldahl)	%	0.19						
Phosphorus (Olsen)	mg/kg	5						
Phosphorus (Colwell)	mg/kg	7						32 - 42
Phosphorus Buffer Index		81	Moderately	low phosp	horus fixatio	on capacity		
Phosphorus Environmental Risk Index		0.09	Low risk of	P loss to th	e environm	ent		
Potassium (Colwell)	mg/kg	240						190 - 245
Sulphur (KCl40)	mg/kg	4						9 - 12
Cation Exch. Cap. (CEC)	cmol(+)/kg	5.4						
Calcium (Amm-acet.)	cmol(+)/kg	2.8						3 - 5
Magnesium (Amm-acet.)	cmol(+)/kg	1.9						1 - 2
Sodium (Amm-acet.)	cmol(+)/kg	0.09	Low risk of	being harn	ful to plant	growth		< 0.7
Potassium (Amm-acet.)	cmol(+)/kg	0.43						
Aluminium (KCI)	cmol(+)/kg	0.1						
Aluminium % of Cations	%	2.5	There are n	o problem	s with Alumi	nium toxicit	y	<= 15



Analyses conducted by Nutrient Advantage Laboratory Services

Email:

For a copy of Laboratory Methods of Analysis please go to www.nutrientadvantage.com.au

11958

8 South Road, Werribee VIC 3030 Tel: 1800 803 453

lab.feedback@incitecpivot.com.au



<u>Certificate of Analysis</u> is available upon request.

NATA Accreditation No:

Version: 4

Page 1 of 5







Nutrient Advantage A	Advice ®
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Recommendation Report

Grower Name:	Goulburb Abs
Sample No:	021552908
Paddock Name:	SS9
Sample Name:	SS9
Sample Depth (cm)	0 To

Nearest Town: Test Code: Sample Type: Sampling Date:

GOULBURN E22 Soil 08/05/2018

Analyte / Assay	Unit	Value	Very Low Marginal Optimum High Excess	Optimal
Grass Tetany Risk Index		0.09		
Calcium % of Cations	%	53.0	Marginal for soil structure, check sodicity	60 - 85 %
Magnesium % of Cations	%	35.0	May affect dispersion in cultivated soils	< 25 %
Sodium % of Cations (ESP)	%	1.60	Non sodic soil, stable soil structure likely	< 6.0 %
Potassium % of Cations	%	8.00		3-7%
Calcium/Magnesium Ratio		1.5	If soil sodic, dispersion possible	> 2.0

The results reported pertain only to the sample submitted.

Analyses performed on soil dried at 40 degrees Celsius and ground to <2mm (excluding moisture assay)





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Nut	trient	Ac	lvanta	ige /	Advice	R]	Recor	nmen	dati	on]	Rep	ort	
Grower Name: Sample No: Paddock Name: Sample Name: Sample Depth (cm)	Goulburt 0215529 SS9 SS9 0	o Abs 108 To	10			Near Test Sam Sam	est T Code ple T pling	own: e: ype: Date:	GOULBUF E22 Soil 08/05/2018	RN 3				
Sample Details: PASTURE Activity (enterprise): Beef/Sheep Pasture: Existing Lucerne: Beef/Sheep Proposed Sowing Method: Time of Sowing: Dairy Stocking Rate (cows/ha): 10.00 Other Stock Type: Other Stocking Rate (dse/ha): 10.00 Cuts per year: Yield per Cut (t/ha) : Yield per Cut (t/ha) :														
Seed Production Type: Sample Depth (cm) Fro	om:		0			Fo To	dder (:	Crop Type:			10			
Recommendations														
Product Application Recommendation Rate (kg/ha) (Unless Stat		ı ı) ıted)	Timing		Appli Meth	cation od	N kg/h	a	P kg/ha		K kg/ha	S kg/ha		
Total Nutrient Applied														
This Recommendati	on has be	en do	one by:	And	lrew Harborr	ne (195	5)		l			1		
Other Elements Ca in recommendation kg/ha		Ca kg/ha	Mg kg/ha	Cu kg/ha	Zr kg/l	า ha	Mo gm/ha	Co gm/ha	B kg/h	a	Fe kg/ha	Mn kg/ha	Si kg/ha	
Total Nutrient Applied														
Legend: N : Nitrogen P : Phosphorus Mg : Magnesium Cu : Copper B : Boron Fe : Iron			phorus per	K : Potassium Zn : Zinc Mn : Manganese				S : Sulphur Ca : Calcium Mo : Molybdenum Co : Cobalt Si : Silicon						







Nut	trier	nt A	dv	ntage Advice® Reco	Recommendation Report				
Grower Name:	Goulb	urb Ab	s	Nearest Town:	GOULBURN				
Sample No:	02155	2908		Test Code:	E22				
Paddock Name:	SS9			Sample Type:	Soil				
Sample Name:	SS9			Sampling Date:	08/05/2018				
Sample Depth (cm)	0	То	10						
				Comments					

What is the soil "Phosphorus Environmental Risk Index"?

The Phosphorus Environmental Risk Index (PERI) is defined as the ratio between the amount of P present in the soil (Colwell P) and the capacity of that soil to retain P (PBI). As a soil becomes increasingly "saturated" with P two things will occur. First, the quantity of soluble P that can be lost from soils by surface runoff and by leaching through internal drainage into shallow groundwaters increases. Second, eroding soil particles are increasingly enriched in biologically available P and thus more likely to release P into waters when they are deposited as sediments in creeks, rivers, dams, and lakes.

PERI - (Phosphorus Environmental Risk Index): This information is based on early research findings for a limited range of soils and climates and should be used as a guide only. Soil solution losses of P from this soil via internal drainage or run-off are not likely to negatively impact the environment. However, precautions need to be taken to prevent soil water draining directly to water bodies such as creeks, rivers, dams and lakes. If the Phosphorus Environmental Risk Index is approaching 0.65, monitor by soil testing again after 2 - 3 more P applications particularly if P applied is significantly greater than P removed in produce. Extra care should be taken on soils with a PBI of less than 15.

Best practice fertiliser application to pastures can minimise nutrient loss and reduce the impact on the environment. Current best practices for phosphorus fertiliser for dryland and irrigated pastures are:

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- On dryland pastures do not apply fertiliser if heavy rain is forecast within 7 days.
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- For the first irrigation after P application, short water to minimise losses in drainage water
- The more time between application and the next runoff event the smaller the amount of phosphorus lost
- · Locate fertiliser storage areas away from potential run-off areas.

Keep phosphorus on the farm - phosphorus fertilisers (with no nitrogen) do not need to be washed in. Even in dry conditions (eg summer), phosphorus fertiliser granules absorb moisture from the soil and air. As water moves in, phosphorus moves out of the granules and into the soil, where it locks onto the soil particles. Within a week most of the phosphorus has moved into the soil, leaving the granule carrier material and a bit of insoluble phosphorus on the soil surface.







Nutrient Advantage Advice®	

Recommendation Report

Grower Name:	Goulbu	irb Ab	S	Nearest Town: GOULBURN
Sample No:	021552	2908		Test Code: E22
Paddock Name:	SS9			Sample Type: Soil
Sample Name:	SS9			Sampling Date: 08/05/2018
Sample Depth (cm)	0	То	10	

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Nutrient Advantage Advice®

Recommendation Report

Goulburb Abs Mazemet Rd

Goulburn

NSW 2580

Report Print Date:	25/06/2018
Agent/Dealer:	
Advisor/Contact:	Andrew Harborne
Phone:	
Purchase Order No:	GL080518

Grower Name:	Goulburb Abs	Nearest Town:	GOULBURN
Sample No:	021552907	Test Code:	E22
Paddock Name:	SS10	Sample Type:	Soil
Sample Name:	SS10	Sampling Date:	08/05/2018
Sample Depth (cm)	0 To 10		

Analyte / Assay	Unit	Value	Very Low Marginal Optimum High Excess	Optimal
Soil Colour		Brown		
Soil Texture		Clay Loam		
pH (1:5 Water)		5.3	Strongly acidic	6.0 - 7.0
pH (1:5 CaCl2)		4.6	May vary depending on plant species	5.2 - 6.0
Electrical Conductivity (1:5 water)	dS/m	0.12	Not saline.	< 0.29
Electrical Conductivity (Sat. Ext.)	dS/m	1.0		<1.9
Chloride	mg/kg	35	Low and harmless to plant growth.	< 180
Organic Carbon (W&B)	%	1.2		2.3 - 5.3
Nitrate Nitrogen	mg/kg	36		25-30
Ammonium Nitrogen	mg/kg	9		10-15
Total Nitrogen (Kjeldahl)	%	0.10		
Phosphorus (Olsen)	mg/kg	4		
Phosphorus (Colwell)	mg/kg	7		27 - 35
Phosphorus Buffer Index		31	Very low phosphorus fixation capacity	
Phosphorus Environmental Risk Index		0.23	Low risk of P loss to the environment	
Potassium (Colwell)	mg/kg	250		170 - 220
Sulphur (KCl40)	mg/kg	8		9 - 12
Cation Exch. Cap. (CEC)	cmol(+)/kg	2.7		
Calcium (Amm-acet.)	cmol(+)/kg	1.6		3 - 5
Magnesium (Amm-acet.)	cmol(+)/kg	0.5		1 - 2
Sodium (Amm-acet.)	cmol(+)/kg	0.09	Low risk of being harmful to plant growth	< 0.7
Potassium (Amm-acet.)	cmol(+)/kg	0.43		
Aluminium (KCI)	cmol(+)/kg	0.1		
Aluminium % of Cations	%	4.8	There are no problems with Aluminium toxicity	<= 15



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Email:

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Incitec Pivot

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Sample No 021552907

Version: 2







Nutrient Advantage Advice	R
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Recommendation Report

Grower Name:	Goulbu	irb Ab
Sample No:	021552	2907
Paddock Name:	SS10	
Sample Name:	SS10	
Sample Depth (cm)	0	То

os 10 Nearest Town: E22 Test Code: Sample Type: Soil Sampling Date:

GOULBURN 08/05/2018

Analyte / Assay	Unit	Value	Very Low Marginal Optimum High Excess	Optimal
Grass Tetany Risk Index		0.20		
Calcium % of Cations	%	58.0	Marginal for soil structure, check sodicity	60 - 85
Magnesium % of Cations	%	18.0	Stable soil structure likely, check sodicity	< 25
Sodium % of Cations (ESP)	%	3.30	Non sodic soil, stable soil structure likely	< 6.0
Potassium % of Cations	%	16.00		
Calcium/Magnesium Ratio		3.2	Stable soil structure likely, check sodicity	> 2.0

The results reported pertain only to the sample submitted.

Analyses performed on soil dried at 40 degrees Celsius and ground to <2mm (excluding moisture assay)







	Nut	trien	t A	dvanta	age .	Advice	®	Reco	mmer	ıdat	ion	Rep	ort	
Grower Nat Sample No Paddock N Sample Na Sample De	me: : ame: me: pth (cm)	Goulbu 021552 SS10 SS10 0	rb Ab: 907 To	s 10			Neare Test (Samp Samp	est Town: Code: ble Type: bling Date:	GOULBU E22 Soil 08/05/201	RN 8				
Sample Deta Enterprise (Pasture: Proposed So Dairy Stocki	Sample Details: Activity (enterprise): Beef/Sheep Enterprise (Crop): PASTURE Activity (enterprise): Beef/Sheep Pasture: Existing Lucerne: Time of Sowing: Proposed Sowing Method: Time of Sowing: Dairy Stocking Rate (cows/ha): 10.00													
Cuts per yea Seed Produc Sample Dep	r: ction Type: th (cm) Fro	m:		0			Yiel Foc To:	ld per Cut (t/h Ider Crop Typ	ate (dse/na): a) : e:		10			
				-		Recom	meno	dations	-					
Product Recommend	ation			Applicatio Rate (kg/h (Unless St	n a) ated)	Timing	1	Application Method	N kg/	l ha	P kg/ha	3	K kg/ha	S kg/ha
Total Nutrien	t Applied					-	-							
This Recon	This Recommendation has been done by: Andrew Harborne (195)													
Other Elemer	nts dation			Ca kg/ha	Mg kg/ha	Cu kg/ha	Zn kg/h	Mo a gm/ha	Co gm/ha	E kg	3 /ha	Fe kg/ha	Mn kg/ha	Si kg/ha
Total Nutrient	Applied													
Legend:	N : Nitro Mg : Maç B : Boro	igen gnesium n		P : Phos Cu : Cop Fe : Iron	sphorus oper	K Z N	: Pota n : Zinc In : Mar	ssium nganese	S : Su Mo : M Si : Sil	lphur olybder con	num	(Ca : Calcium Co : Cobalt	1







Nu	trient Advantage A	Advice® Reco	mmendation Report
Grower Name:	Goulburb Abs	Nearest Town:	GOULBURN
Sample No:	021552907	Test Code:	E22
Paddock Name:	SS10	Sample Type:	Soil
Sample Name:	SS10	Sampling Date:	08/05/2018
Sample Depth (cm)	0 To 10		
		Comments	

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N	utrient Adv	vantage Advice®	F
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Recommendation Report

Grower Name:	Goulburb Ab	S	Nearest Town: GOULBURN
Sample No:	021552907		Test Code: E22
Paddock Name:	SS10		Sample Type: Soil
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