Nutrient Advantage®

Greenleaf agronomy
ABN 63 301013026

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
Sample No: 021552916
Paddock Name: SS1
Sample Name: SS
Sample Depth (cm) 0 **To** 10

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

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 alkaline	6.0 - 7.0
pH (1:5 CaCl2)		6.5	May vary depending on plant species	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 harmless to plant growth.	< 180
Organic Carbon (W&B)	%	3.9		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 phosphorus fixation capacity	
Phosphorus Environmental Risk Index		3.93	Risk of P loss to environment	
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 harmful to plant growth	< 0.7
Potassium (Amm-acet.)	cmol(+)/kg	1.60		
Aluminium (KCl)	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

NATA Accreditation No: 11958

Certificate of Analysis is available upon request.

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Paddock Name: SS1
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Sample Depth (cm) 0 **To** 10

Nearest Town: GOULBURN
Test Code: E22
Sample Type: Soil
Sampling Date: 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)
* One or more components of this test are below their detection limit. The value used is indicative only.

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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		

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):**	
Cuts per year:		**Yield per Cut (t/ha) :**	
Seed Production Type:		**Fodder Crop Type:**	
Sample Depth (cm) From:	0	**To:**	10

Recommendations

Product Recommendation	Application Rate (kg/ha) (Unless Stated)	Timing	Application Method	N kg/ha	P kg/ha	K kg/ha	S kg/ha
Total Nutrient Applied							

This Recommendation has been done by: Andrew Harborne (195)

Other Elements in recommendation	Ca kg/ha	Mg kg/ha	Cu kg/ha	Zn kg/ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe kg/ha	Mn kg/ha	Si kg/ha
Total Nutrient Applied										

Legend:
N : Nitrogen, P : Phosphorus, K : Potassium, S : Sulphur, Ca : Calcium
Mg : Magnesium, Cu : Copper, Zn : Zinc, Mo : Molybdenum, Co : Cobalt
B : Boron, Fe : Iron, Mn : Manganese, Si : Silicon

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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.
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.

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NSW 2580

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

Grower Name: Goulburb Abs
Sample No: 021552915
Paddock Name: SS2
Sample Name: SS2
Sample Depth (cm) 0 **To** 10

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

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 acidic	6.0 - 7.0
pH (1:5 CaCl2)		5.9	May vary depending on plant species	5.2 - 6.0
Electrical Conductivity (1:5 water)	dS/m	0.38	Slightly saline.	< 0.29
Electrical Conductivity (Sat. Ext.)	dS/m	3.0		<1.9
Chloride	mg/kg	100	Low and harmless to 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 phosphorus fixation capacity	
Phosphorus Environmental Risk Index		4.81	Risk of P loss to environment	
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 harmful to plant growth	< 0.7
Potassium (Amm-acet.)	cmol(+)/kg	1.80		
Aluminium (KCl)	cmol(+)/kg	<0.1		
Aluminium % of Cations	%	<1.0	There are no problems with Aluminium toxicity	< 5%

ASPAC

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Grower Name: Goulburb Abs
Sample No: 021552915
Paddock Name: SS2
Sample Name: SS2
Sample Depth (cm) 0 **To** 10

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

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

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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		

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):**	
Cuts per year:		**Yield per Cut (t/ha) :**	
Seed Production Type:		**Fodder Crop Type:**	
Sample Depth (cm) From:	0	**To:**	10

Recommendations

Product Recommendation	Application Rate (kg/ha) (Unless Stated)	Timing	Application Method	N kg/ha	P kg/ha	K kg/ha	S kg/ha
Total Nutrient Applied							

This Recommendation has been done by: Andrew Harborne (195)

Other Elements in recommendation	Ca kg/ha	Mg kg/ha	Cu kg/ha	Zn kg/ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe kg/ha	Mn kg/ha	Si kg/ha
Total Nutrient Applied										

Legend:

N : Nitrogen	P : Phosphorus	K : Potassium	S : Sulphur	Ca : Calcium
Mg : Magnesium	Cu : Copper	Zn : Zinc	Mo : Molybdenum	Co : Cobalt
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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		

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NSW 2580

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

Grower Name: Goulburb Abs
Sample No: 021552914
Paddock Name: SS3
Sample Name: SS3
Sample Depth (cm) 0 **To** 10

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

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 (KCl)	cmol(+)/kg	<0.1		
Aluminium % of Cations	%	<1.0	There are no problems with Aluminium toxicity	< 5%

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Sample No: 021552914
Paddock Name: SS3
Sample Name: SS3
Sample Depth (cm) 0 **To** 10

Nearest Town: GOULBURN
Test Code: E22
Sample Type: Soil
Sampling Date: 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

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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		

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):**	
Cuts per year:		**Yield per Cut (t/ha) :**	
Seed Production Type:		**Fodder Crop Type:**	
Sample Depth (cm) From:	0	**To:**	10

Recommendations

Product Recommendation	Application Rate (kg/ha) (Unless Stated)	Timing	Application Method	N kg/ha	P kg/ha	K kg/ha	S kg/ha
Total Nutrient Applied							

This Recommendation has been done by: Andrew Harborne (195)

Other Elements in recommendation	Ca kg/ha	Mg kg/ha	Cu kg/ha	Zn kg/ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe kg/ha	Mn kg/ha	Si kg/ha
Total Nutrient Applied										

Legend:
N : Nitrogen, P : Phosphorus, K : Potassium, S : Sulphur, Ca : Calcium
Mg : Magnesium, Cu : Copper, Zn : Zinc, Mo : Molybdenum, Co : Cobalt
B : Boron, Fe : Iron, Mn : Manganese, Si : Silicon

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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		

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.

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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.
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Nutrient Advantage®

Greenleaf agronomy
ABN 63 301013026

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
Sample No: 021552913
Paddock Name: SS4
Sample Name: SS4
Sample Depth (cm) 0 **To** 10

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

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 (KCl)	cmol(+)/kg	<0.1		
Aluminium % of Cations	%	<1.0	There are no problems with Aluminium toxicity	< 5%

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Nutrient Advantage®

Greenleaf agronomy
ABN 63 301013026

Nutrient Advantage Advice® Recommendation Report

Grower Name: Goulburb Abs
Sample No: 021552913
Paddock Name: SS4
Sample Name: SS4
Sample Depth (cm) 0 **To** 10

Nearest Town: GOULBURN
Test Code: E22
Sample Type: Soil
Sampling Date: 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

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ABN 63 301013026

Nutrient Advantage Advice® Recommendation Report

Grower Name:	Goulburn 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		

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):**	
Cuts per year:		**Yield per Cut (t/ha) :**	
Seed Production Type:		**Fodder Crop Type:**	
Sample Depth (cm) From:	0	**To:**	10

Recommendations

Product Recommendation	Application Rate (kg/ha) (Unless Stated)	Timing	Application Method	N kg/ha	P kg/ha	K kg/ha	S kg/ha
Total Nutrient Applied							

This Recommendation has been done by: Andrew Harborne (195)

Other Elements in recommendation	Ca kg/ha	Mg kg/ha	Cu kg/ha	Zn kg/ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe kg/ha	Mn kg/ha	Si kg/ha
Total Nutrient Applied										

Legend:
N : Nitrogen, P : Phosphorus, K : Potassium, S : Sulphur, Ca : Calcium
Mg : Magnesium, Cu : Copper, Zn : Zinc, Mo : Molybdenum, Co : Cobalt
B : Boron, Fe : Iron, Mn : Manganese, Si : Silicon

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ABN 63 301013026

Nutrient Advantage Advice® Recommendation Report

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		

Comments

What is the soil "Phosphorus Environmental Risk Index"?
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Greenleaf agronomy
ABN 63 301013026

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
Sample No: 021552912
Paddock Name: SS5
Sample Name: SS5
Sample Depth (cm) 0 **To** 10

Nearest Town: GOULBURN
Test Code: E22
Sample Type: Soil
Sampling Date: 09/05/2018

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 (KCl)	cmol(+)/kg	<0.1		
Aluminium % of Cations	%	<1.0	There are no problems with Aluminium toxicity	< 5%

ASPAC

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Grower Name: Goulburb Abs
Sample No: 021552912
Paddock Name: SS5
Sample Name: SS5
Sample Depth (cm) 0 **To** 10

Nearest Town: GOULBURN
Test Code: E22
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 for soil structure, check sodici					60 - 85 %
Magnesium % of Cations	%	23.0	Stable soil structure likely, check sodicity					< 25 %
Sodium % of Cations (ESP)	%	11.00	Moderate sodicity, dispersive soil likely					< 6.0 %
Potassium % of Cations	%	5.40						3-7%
Calcium/Magnesium Ratio		2.6	Stable soil structure likely, check sodicity					> 2.0

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Greenleaf agronomy
ABN 63 301013026

Nutrient Advantage Advice® Recommendation Report

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		

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):**	
Cuts per year:		**Yield per Cut (t/ha) :**	
Seed Production Type:		**Fodder Crop Type:**	
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Recommendations

Product Recommendation	Application Rate (kg/ha) (Unless Stated)	Timing	Application Method	N kg/ha	P kg/ha	K kg/ha	S kg/ha
Total Nutrient Applied							

This Recommendation has been done by: Andrew Harborne (195)

Other Elements in recommendation	Ca kg/ha	Mg kg/ha	Cu kg/ha	Zn kg/ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe kg/ha	Mn kg/ha	Si kg/ha
Total Nutrient Applied										

Legend:

N : Nitrogen	P : Phosphorus	K : Potassium	S : Sulphur	Ca : Calcium
Mg : Magnesium	Cu : Copper	Zn : Zinc	Mo : Molybdenum	Co : Cobalt
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Nutrient Advantage Advice® Recommendation Report

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
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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
Sample No: 021552911
Paddock Name: SS6
Sample Name: SS6
Sample Depth (cm) 0 **To** 10

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

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 alkaline	6.0 - 7.0
pH (1:5 CaCl2)		7.1	May vary depending on plant species	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 harmless 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 phosphorus fixation capacity	
Phosphorus Environmental Risk Index		1.68	Possible risk of P loss to environment	
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 harmful to plant growth	< 0.7
Potassium (Amm-acet.)	cmol(+)/kg	0.54		
Aluminium (KCl)	cmol(+)/kg	<0.1		
Aluminium % of Cations	%	<1.0	There are no problems with Aluminium toxicity	< 5%

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Paddock Name: SS6
Sample Name: SS6
Sample Depth (cm) 0 **To** 10

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

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

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Grower Name:	Goulburn 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		

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):**	
Cuts per year:		**Yield per Cut (t/ha) :**	
Seed Production Type:		**Fodder Crop Type:**	
Sample Depth (cm) From:	0	**To:**	10

Recommendations

Product Recommendation	Application Rate (kg/ha) (Unless Stated)	Timing	Application Method	N kg/ha	P kg/ha	K kg/ha	S kg/ha
Total Nutrient Applied							

This Recommendation has been done by: Andrew Harborne (195)

Other Elements in recommendation	Ca kg/ha	Mg kg/ha	Cu kg/ha	Zn kg/ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe kg/ha	Mn kg/ha	Si kg/ha
Total Nutrient Applied										

Legend:
N : Nitrogen, P : Phosphorus, K : Potassium, S : Sulphur, Ca : Calcium
Mg : Magnesium, Cu : Copper, Zn : Zinc, Mo : Molybdenum, Co : Cobalt
B : Boron, Fe : Iron, Mn : Manganese, Si : Silicon

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ABN 63 301013026

Nutrient Advantage Advice® Recommendation Report

Grower Name:	Goulburn 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.

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ABN 63 301013026

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
Sample No: 021552910
Paddock Name: SS7
Sample Name: SS7
Sample Depth (cm) 0 **To** 10

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

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 (KCl)	cmol(+)/kg	<0.1		
Aluminium % of Cations	%	<1.0	There are no problems with Aluminium toxicity	<5%

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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
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Nutrient Advantage®

Greenleaf agronomy
ABN 63 301013026

Nutrient Advantage Advice® Recommendation Report

Grower Name: Goulburb Abs
Sample No: 021552910
Paddock Name: SS7
Sample Name: SS7
Sample Depth (cm) 0 **To** 10

Nearest Town: GOULBURN
Test Code: E22
Sample Type: Soil
Sampling 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)
* One or more components of this test are below their detection limit. The value used is indicative only.

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Nutrient Advantage®

Greenleaf agronomy
ABN 63 301013026

Nutrient Advantage Advice® Recommendation 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		

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):**	
Cuts per year:		**Yield per Cut (t/ha) :**	
Seed Production Type:		**Fodder Crop Type:**	
Sample Depth (cm) From:	0	**To:**	10

Recommendations

Product Recommendation	Application Rate (kg/ha) (Unless Stated)	Timing	Application Method	N kg/ha	P kg/ha	K kg/ha	S kg/ha
Total Nutrient Applied							

This Recommendation has been done by: Andrew Harborne (195)

Other Elements in recommendation	Ca kg/ha	Mg kg/ha	Cu kg/ha	Zn kg/ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe kg/ha	Mn kg/ha	Si kg/ha
Total Nutrient Applied										

Legend:

N : Nitrogen	P : Phosphorus	K : Potassium	S : Sulphur	Ca : Calcium
Mg : Magnesium	Cu : Copper	Zn : Zinc	Mo : Molybdenum	Co : Cobalt
B : Boron	Fe : Iron	Mn : Manganese	Si : Silicon	

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Greenleaf agronomy
ABN 63 301013026

Nutrient Advantage Advice® Recommendation Report

Grower Name:	Goulburn 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

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.
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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.
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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.
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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.

Nutrient Advantage®

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ABN 63 301013026

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
Sample No: 021552909
Paddock Name: SS8
Sample Name: SS8
Sample Depth (cm) 0 **To** 10

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

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 (KCl)	cmol(+)/kg	<0.1		
Aluminium % of Cations	%	<1.0	There are no problems with Aluminium toxicity	<5%

ASPAC

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ABN 63 301013026

Nutrient Advantage Advice® Recommendation Report

Grower Name: Goulburb Abs
Sample No: 021552909
Paddock Name: SS8
Sample Name: SS8
Sample Depth (cm) 0 **To** 10

Nearest Town: GOULBURN
Test Code: E22
Sample Type: Soil
Sampling Date: 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

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Analyses performed on soil dried at 40 degrees Celsius and ground to <2mm (excluding moisture assay)
* One or more components of this test are below their detection limit. The value used is indicative only.

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Nutrient Advantage Advice® Recommendation Report

Grower Name:	Goulburn Abs	**Nearest Town:**	GOULBURN
Sample No:	021552909	**Test Code:**	E22
Paddock Name:	SS8	**Sample Type:**	Soil
Sample Name:	SS8	**Sampling Date:**	08/05/2018
Sample Depth (cm)	0 **To** 10		

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):**	
Cuts per year:		**Yield per Cut (t/ha) :**	
Seed Production Type:		**Fodder Crop Type:**	
Sample Depth (cm) From:	0	**To:**	10

Recommendations

Product Recommendation	Application Rate (kg/ha) (Unless Stated)	Timing	Application Method	N kg/ha	P kg/ha	K kg/ha	S kg/ha
Total Nutrient Applied							

This Recommendation has been done by: Andrew Harborne (195)

Other Elements in recommendation	Ca kg/ha	Mg kg/ha	Cu kg/ha	Zn kg/ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe kg/ha	Mn kg/ha	Si kg/ha
Total Nutrient Applied										

Legend:
N : Nitrogen, P : Phosphorus, K : Potassium, S : Sulphur, Ca : Calcium
Mg : Magnesium, Cu : Copper, Zn : Zinc, Mo : Molybdenum, Co : Cobalt
B : Boron, Fe : Iron, Mn : Manganese, Si : Silicon

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Nutrient Advantage®

Greenleaf agronomy
ABN 63 301013026

Nutrient Advantage Advice® Recommendation Report

Grower Name:	Goulburb Abs	**Nearest Town:**	GOULBURN
Sample No:	021552909	**Test Code:**	E22
Paddock Name:	SS8	**Sample Type:**	Soil
Sample Name:	SS8	**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 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.

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Nutrient Advantage Advice® Recommendation Report

Grower Name:	Goulburb Abs	**Nearest Town:**	GOULBURN
Sample No:	021552909	**Test Code:**	E22
Paddock Name:	SS8	**Sample Type:**	Soil
Sample Name:	SS8	**Sampling Date:**	08/05/2018
Sample Depth (cm)	0 **To** 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.
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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.
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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.

The Phosphorous recommendation on this report includes a requirement for building up the soil Phosphorous level to the target. It is assumed that buildup will occur over 3 years. This value is added on top of any maintenance recommended just to replace the phosphorous that will be removed.

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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
Sample No: 021552908
Paddock Name: SS9
Sample Name: SS9
Sample Depth (cm) 0 **To** 10

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

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 depending on plant species					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 harmless to plant 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 phosphorus fixation capacity					
Phosphorus Environmental Risk Index		0.09	Low risk of P loss to the environment					
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 harmful to plant growth					< 0.7
Potassium (Amm-acet.)	cmol(+)/kg	0.43						
Aluminium (KCl)	cmol(+)/kg	0.1						
Aluminium % of Cations	%	2.5	There are no problems with Aluminium toxicity					<= 15

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Analyses conducted by **Nutrient Advantage Laboratory Services**
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8 South Road, Werribee VIC 3030
NATA Accreditation No: 11958
Tel: 1800 803 453
Certificate of Analysis is available upon request. Email: lab.feedback@incitecpivot.com.au

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Nutrient Advantage®

Greenleaf agronomy
ABN 63 301013026

Nutrient Advantage Advice® Recommendation Report

Grower Name: Goulburb Abs
Sample No: 021552908
Paddock Name: SS9
Sample Name: SS9
Sample Depth (cm) 0 **To** 10

Nearest Town: GOULBURN
Test Code: E22
Sample Type: Soil
Sampling Date: 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)
* One or more components of this test are below their detection limit. The value used is indicative only.

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Nutrient Advantage Advice® Recommendation Report

Grower Name:	Goulburb Abs	**Nearest Town:**	GOULBURN
Sample No:	021552908	**Test Code:**	E22
Paddock Name:	SS9	**Sample Type:**	Soil
Sample Name:	SS9	**Sampling Date:**	08/05/2018
Sample Depth (cm)	0 **To** 10		

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):**	
Cuts per year:		**Yield per Cut (t/ha) :**	
Seed Production Type:		**Fodder Crop Type:**	
Sample Depth (cm) From:	0	**To:**	10

Recommendations

Product Recommendation	Application Rate (kg/ha) (Unless Stated)	Timing	Application Method	N kg/ha	P kg/ha	K kg/ha	S kg/ha
Total Nutrient Applied							

This Recommendation has been done by: Andrew Harborne (195)

Other Elements in recommendation	Ca kg/ha	Mg kg/ha	Cu kg/ha	Zn kg/ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe kg/ha	Mn kg/ha	Si kg/ha
Total Nutrient Applied										

Legend:
N : Nitrogen, P : Phosphorus, K : Potassium, S : Sulphur, Ca : Calcium
Mg : Magnesium, Cu : Copper, Zn : Zinc, Mo : Molybdenum, Co : Cobalt
B : Boron, Fe : Iron, Mn : Manganese, Si : Silicon

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Grower Name:	Goulburb Abs	**Nearest Town:**	GOULBURN
Sample No:	021552908	**Test Code:**	E22
Paddock Name:	SS9	**Sample Type:**	Soil
Sample Name:	SS9	**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 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.

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Grower Name:	Goulburb Abs	**Nearest Town:**	GOULBURN
Sample No:	021552908	**Test Code:**	E22
Paddock Name:	SS9	**Sample Type:**	Soil
Sample Name:	SS9	**Sampling Date:**	08/05/2018
Sample Depth (cm)	0 **To** 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.
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.

The Phosphorous recommendation on this report includes a requirement for building up the soil Phosphorous level to the target. It is assumed that buildup will occur over 3 years. This value is added on top of any maintenance recommended just to replace the phosphorous that will be removed.

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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
Sample No: 021552907
Paddock Name: SS10
Sample Name: SS10
Sample Depth (cm) 0 **To** 10

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

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 (KCl)	cmol(+)/kg	0.1						
Aluminium % of Cations	%	4.8	There are no problems with Aluminium toxicity					<= 15

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Grower Name: Goulburb Abs
Sample No: 021552907
Paddock Name: SS10
Sample Name: SS10
Sample Depth (cm) 0 **To** 10

Nearest Town: GOULBURN
Test Code: E22
Sample Type: Soil
Sampling Date: 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

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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		

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):**	
Cuts per year:		**Yield per Cut (t/ha) :**	
Seed Production Type:		**Fodder Crop Type:**	
Sample Depth (cm) From:	0	**To:**	10

Recommendations

Product Recommendation	Application Rate (kg/ha) (Unless Stated)	Timing	Application Method	N kg/ha	P kg/ha	K kg/ha	S kg/ha
Total Nutrient Applied							

This Recommendation has been done by: Andrew Harborne (195)

Other Elements in recommendation	Ca kg/ha	Mg kg/ha	Cu kg/ha	Zn kg/ha	Mo gm/ha	Co gm/ha	B kg/ha	Fe kg/ha	Mn kg/ha	Si kg/ha
Total Nutrient Applied										

Legend:
N : Nitrogen, P : Phosphorus, K : Potassium, S : Sulphur, Ca : Calcium
Mg : Magnesium, Cu : Copper, Zn : Zinc, Mo : Molybdenum, Co : Cobalt
B : Boron, Fe : Iron, Mn : Manganese, Si : Silicon

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Nutrient Advantage Advice® Recommendation Report

Grower Name:	Goulburb Abs	**Nearest Town:**	GOULBURN
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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		

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