



ANALYSIS REPORT

Client: NPK Simpson	Lab No: 712916	shpv1
Address: MoreDosh Farms Somewhere NORTH ISLAND	Date Registered: 03-Aug-2009	
	Date Reported: 03-Aug-2009	
	Quote No:	
	Order No:	
	Client Reference: Example SpPast+ADMB rep	
	Submitted By: NPK Simpson	

Sample Name: Middle paddocks **Lab Number:** 712916.1
Sample Type: Mixed Pasture, Dairy (P1)

Analysis	Level Found	Medium Range	Low	Medium	High
Nitrogen*	% 3.6	4.0 - 5.0			
Phosphorus	% 0.35	0.38 - 0.45			
Potassium	% 2.7	2.5 - 3.0			
Sulphur	% 0.28	0.30 - 0.40			
Calcium	% 0.64	0.60 - 1.00			
Magnesium	% 0.21	0.20 - 0.30			
Sodium	% 0.17	0.15 - 0.30			
Iron	mg/kg 110	100 - 250			
Manganese	mg/kg 53	60 - 150			
Zinc	mg/kg 25	30 - 50			
Copper	mg/kg 9	10 - 12			
Boron	mg/kg 8				
Molybdenum	mg/kg 0.70	0.50 - 1.2			
Cobalt	mg/kg 0.06	0.10 - 0.20			
Selenium	mg/kg 0.05	0.08 - 0.15			
Chloride*	% 0.80	0.30 - 2.4			
Crude Protein*	%DM 23.7	20.0 - 30.0			
Digestibility of Organic Matter in Dry Matter (DOMD)*	% 71.3	65.0 - 80.0			
Metabolisable Energy*	MJ/Kg 11.4	9.0 - 12.0			
Grass Staggers Index*	me 1.4	(<1.8 recommended, >2.2 increased risk)			
K/Na Ratio*	16	(<10 recommended, >20 increased risk)			
Ca/P Ratio*	1.8	(>1.5 recommended, <1.2 increased risk)			
DCAD*	me 366	(<200 recommended, >200 increased risk)			

The above nutrient graph compares the levels found with reference interpretation levels. NOTE: It is important that the correct sample type be assigned, and that the recommended sampling procedure has been followed. R J Hill Laboratories Limited does not accept any responsibility for the resulting use of this information. IANZ Accreditation does not apply to comments and interpretations, i.e. the 'Range Levels' and subsequent graphs.

Analyst's Comments

The nutrient ratio indices have been calculated to assist in evaluating the suitability of this sample as a dairy feed. Although based on published calculations, they should be used with caution, as metabolic disorders can be induced by a multitude of factors, and not just these nutrient ratios alone. For further details of the calculations, please contact this laboratory.

The medium ranges shown are the higher of either the minimum requirement for lush grass growth or animal nutritional requirements fed on an 'ad-lib' basis.

The boron level in mixed herbage is especially difficult to interpret. This is because grasses typically have 5 - 10 mg/kg and clover 18 - 25 mg/kg, making the mixed herbage B level very dependent upon the relative proportions of grass and clover in the sample. It is further complicated by the natural seasonal trend of low levels of boron during winter/spring c.f. higher levels in summer/autumn. As a consequence, we no longer provide a graphical interpretation for B in mixed herbage. A clover-only sample is recommended for monitoring boron status in pasture.





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ANIMAL DIETARY MINERAL BALANCE

Sample Name: Middle paddocks **Lab Number:** 712916.1
Sample Type: Mixed Pasture, Dairy (P1)

Analysis	Daily Intake	Daily Req.	Nutrient Bal.	Deficit	Satisfactory	Surplus
Nitrogen*	432 g	480 g	-48 g		N	
Phosphorus	42 g	58 g	-16 g		P	
Potassium	324 g	180 g	144 g		K	
Sulphur	34 g	42 g	-8.0 g		S	
Calcium	77 g	92 g	-15 g		Ca	
Magnesium	25 g	36 g	-11 g		Mg	
Sodium	20 g	30 g	-10 g		Na	
Iron	1,320 mg	720 mg	600 mg		Fe	
Manganese	636 mg	600 mg	36 mg		Mn	
Zinc	300 mg	480 mg	-180 mg		Zn	
Copper	108 mg	120 mg	-12 mg		Cu	
Boron	96 mg	0.0 mg	96 mg		B	
Molybdenum	8.4 mg	4.2 mg	4.2 mg		Mo	
Cobalt	0.72 mg	1.2 mg	-0.48 mg		Co	
Selenium	0.60 mg	1.2 mg	-0.60 mg		Se	
Chloride*	96 g	120 g	-24 g		Cl	
Species*	Dairy					
Live Weight*	kg	400	(Assumed)			
Daily Intake*	kg	12	(Assumed)			
Calving Month*	7					
Period*	Early Lactation					
Grass Staggers Index*	me	1.4	(<1.8 recommended, >2.2 increased risk)			
K/Na Ratio*	16 (<10 recommended, >20 increased risk)					
Ca/P Ratio*	1.8 (>1.5 recommended, <1.2 increased risk)					
DCAD*	me	366	(<200 recommended, >200 increased risk)			

Note 1: This Mineral Balance Report should be viewed in conjunction with the Hill Laboratories' Analysis Results. Note that the graphs on the Analysis Results account for both plant and animal requirements, whereas this balance report is only for the animal requirements.

Note 2: This report converts the analysis results to daily animal intake levels, and compares these to nominated requirements, providing a basis for determining the mineral balance (deficits or surpluses) of minerals in the sample as received.

Note 3: Dietary copper absorption is significantly affected by nutrient interactions, but no suitable index or ratio calculation is available at this time. High levels of molybdenum, sulphur and iron will all depress copper uptake.



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SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Sample Type: Plant			
Test	Method Description	Default Detection Limit	Samples
Sample Registration*	Samples were registered according to instructions received.	-	1
Plant Prep (Dry & Grind)*	Oven dried at 62°C overnight (residual moisture typically 5%) and ground to pass through a 1.0mm screen.	-	1
Nitrogen*	Estimated by NIR, calibration based on N by Dumas combustion.	0.1 %	1
Phosphorus	Nitric Acid/Hydrogen Peroxide digestion followed by ICP-OES.	0.02 %	1
Potassium	Nitric Acid/Hydrogen Peroxide digestion followed by ICP-OES.	0.1 %	1
Sulphur	Nitric Acid/Hydrogen Peroxide digestion followed by ICP-OES.	0.02 %	1
Calcium	Nitric Acid/Hydrogen Peroxide digestion followed by ICP-OES.	0.02 %	1
Magnesium	Nitric Acid/Hydrogen Peroxide digestion followed by ICP-OES.	0.02 %	1
Sodium	Nitric Acid/Hydrogen Peroxide digestion followed by ICP-OES.	0.01 %	1
Iron	Nitric Acid/Hydrogen Peroxide digestion followed by ICP-OES.	5 mg/kg	1
Manganese	Nitric Acid/Hydrogen Peroxide digestion followed by ICP-OES.	3 mg/kg	1
Zinc	Nitric Acid/Hydrogen Peroxide digestion followed by ICP-OES.	2 mg/kg	1
Copper	Nitric Acid/Hydrogen Peroxide digestion followed by ICP-OES.	1 mg/kg	1
Boron	Nitric Acid/Hydrogen Peroxide digestion followed by ICP-OES.	1 mg/kg	1
Molybdenum	Nitric Acid/Hydrogen Peroxide digestion followed by ICP-MS.	0.02 mg/kg	1
Cobalt	Nitric Acid/Hydrogen Peroxide digestion followed by ICP-MS.	0.01 mg/kg	1
Selenium	Nitric Acid/Hydrogen Peroxide digestion followed by ICP-MS.	0.01 mg/kg	1
Chloride*	Estimated by NIR, calibration based on 2% acetic acid extraction, potentiometric titration.	0.05 %	1
Crude Protein*	Nitrogen multiplied by 6.25. Reported on DM basis.	0.5 %DM	1
Digestibility of Organic Matter in Dry Matter (DOMD)*	Calculated from Organic Matter Digestibility (OMD) using AFIA (Australian Fodder Industry Association) Standard Equation.	0.5 %	1
Metabolisable Energy*	Calculated from Dry Organic Matter Digestibility (DOMD) using AFRC and Lincoln University standard formulae.	0.5 MJ/Kg	1

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

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Fiona Calvert NZCS
Client Services Manager - Agriculture Division