WATER RECOMMENDATION REPORT

JOHN & HILDE GERATHY
1553 BURNT YARDS ROAD
ERROWANBANG
NSW 2791

Service Provider: The Rural Centre Pty Ltd
Advisor/Contact: Keith Garlick
Phone: 0428 698335
Purchase Order: 2249

Grower Name:	JOHN & HILDE GERATHY	**Paddock Name:**	BORE 72HRS	**Sample Name:**	
Sample Number:	022170631			**Sampling Date:**	15/05/2020
Sample Water Type:	Irrigation	**Water Use:**	Ornamentals	**Water Source:**	Bore

Advisor Comments

John,

For livestock water purposes, the water quality appears to be quite satisfactory in regard to mineral composition.

There has been no analysis for biological factors, which are influenced by such things as water temperature (depth, volume etc.), organic residue and nutrient status.

Due to salinity and hardness it is not recommended to use the water in its present state for domestic, human or garden situations.

Most ornamentals are not tolerant of salinity except ones that have a high tolerance. The hardness of the water can lead to problems with scale in pumps and pipe work.

As water is mixed flowing into an aquifer the level that the sample is taken from would have little affect on the mineral composition of the water.

It would be suggested to consider using this source of water as a backup and if available blend with a more suitable source to make it more useful in a garden setting if required.

Please see attached spread sheet for a detailed report.

To clarify any of the results or recommendations made on this water test please contact Keith Garlick on (02) 6362 1899

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WATER ANALYSIS REPORT

Grower Name:	JOHN & HILDE GERATHY	**Paddock Name:**	BORE 72HRS	**Sample Name:**	
Sample Number:	022170631	**Test code:**	C1	**Sampling Date:**	15/05/2020

Analyte	Unit	Value	Optimum	Low / Adequate / High
Electrical Conductivity	dS/m	1.50		
pH		7.8	5.0 - 8.6	
Chloride	mg/L	96.00	< 175	
Sodium (Dissolved)	mg/L	69.00	< 70	
Salinity Class		3.00	< 1.1	
Res. Sod. Carb. (RSC)	meq/L	-8.90		
Sodium Adsorption Ratio (SAR)		1.10		
Sodicity Class		0.00		
Total Alkalinity	mg CaCO3/L	350.00		
Bicarbonate Alkalinity	mg CaCO3/L	350.00		
Carbonate Alkalinity	meq/L	0.00		
Carbonate Alkalinity	mg CaCO3/L	0.00		
Bicarbonate Alkalinity	meq/L	7.00	< 2.0	
Calcium Carbonate Saturation Index		1.30	-0.5 - 0.5	
Water Hardness	mg CaCO3/L	800.00	< 100	
Aluminium (Dissolved)	mg/L	<0.05	< 5.0	
Boron (Dissolved)	mg/L	<0.03	< 0.5	
Calcium (Dissolved)	mg/L	180.00	< 100	
Copper (Dissolved)	mg/L	<0.01	< 0.2	
Iron (Dissolved)	mg/L	0.03	< 1.0	
Magnesium (Dissolved)	mg/L	84.00	< 100	
Manganese (Dissolved)	mg/L	0.83	< 0.2	
Ammonium Nitrogen	mg/L	<1.0		
Nitrate Nitrogen	mg/L	<1.0	< 10	
Phosphorus (Dissolved)	mg/L	<0.10	< 0.2	
Potassium (Dissolved)	mg/L	1.60	< 15	

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Analyte	Unit	Value	Optimum	Low	Adequate	High
Sulphur (Dissolved)	mg/L	110.00	< 5.0			
Zinc (Dissolved)	mg/L	<0.02	< 2.0			
Total Dissolved Ions	mg/L	1,000.00				

The results in this report pertain only to the sample submitted. Analyses performed on soil dried at 40°C and ground to 2mm or less, excluding moisture tests, or as otherwise indicated. Analyses performed on plant dried at 70°C and ground to 1mm or less, excluding moisture tests, or as otherwise indicated. Water analyses performed on an 'as received' basis. Analytical results reported by the laboratory as 'less than' the level of reporting, will be deemed by NA Pro as being equivalent to the level of reporting for both calculation and interpretive purposes. This document shall not be reproduced except in full.

JOHN & HILDE GERATHY 14/04/2020

SOURCE: BORE

Analyte	Unit	Result	Result	Result	Drinking Water	Livestock	Domestic	Irrigation
		Bore	Bore 72hrs	Creek	Health Guidelines	Trigger Values	Water Use	Garden
		14/04/20	**15/05/20**	**15/05/20**				
Electrical Conductivity	dS/m	**1.5**	1.5	1.5	<0.8	4.7	<1.0	0.65-1.3
pH		**7.3**	7.8	7.7	6.5-8.5	6.5-8.5	5.5-8.5	5.0-8.5
Chloride	mg/L	**150.00**	96.00	96.00	<250	1200	<400	<175
Sodium (Dissolved)	mg/L	**65.00**	69	68.00	<180	<1000	<100	<70
Salinity Class		**3.00**	**3.00**	**3.00**	**<0.02**	3	<2	<2
Res. Sod.Carb.(RSC	meq/L	**-10.00**	-8.90	-8.10	soil affect	soil affect		<1.25
Sodium Absorption Ratio (SAR)		**1.00**	1.10	1.10	<3.0	20	<3.0	3-6
Sodicity Class		**0.00**	0.00	0.00	<0.001	0.002	n/a	<1.0
Total Alkalinity	mgCaCo3/L	**290**	350.00	350.00	relates to hardness	relates to hardness	relates to hardness	
Bicarbonate Alkalinity	mgCaCo3/L	**290**	350.00	350.00	relates to hardness	relates to hardness	relates to hardness	
Carbonate Alkalinity	meq/L	**0.00**	0.00	0.00	relates to hardness	relates to hardness	relates to hardness	
Carbonate Alkalinity	mgCaCo3/L	**0.00**	0.00	0.00	relates to hardness	relates to hardness	relates to hardness	
Bicarbonate Alkalinity	meq/L	**5.90**	7.00	7.00	n/a	n/a	n/a	<2.0
Calcium Carbonate Saturation Index		**0.69**	1.30	1.10	relates to scaling	related to scaling	-0.5 - +0.5	-0.5 - +0.5
Water Hardness	mgCaCo3/L	**810**	**800.00**	**760.00**	**<200**	n/a	**<200**	**<300**
Aluminium (Dissolved)	mg/L	**<0.05**	<0.05	<0.05	<0.2	5	<5	<5
Boron (Dissolved)	mg/L	**<0.03**	<0.03	<0.03	<4.0	5	<0.5	<0.5
Calcium (Dissolved)	mg/L	**170.00**	180.00	170.00	200	**100**	relates to hardness	**<100**
Copper (Dissolved)	mg/L	**<0.01**	<0.01	<0.01	<2.0	0.5	<1.0	<0.2
Iron (Dissolved)	mg/L	**<0.01**	0.03	0.01	<0.3	50	<0.3	<1.0
Magnessium (Dissolved)	mg/L	**93.00**	84.00	81.00	<150	250	relates to hardness	<50
Manganese (Dissolved)	mg/L	**0.84**	0.83	0.82	<0.5 Health <0.11 Taste	<2.0	<0.15	<0.2
Ammonium Nitrogen	mg/L	**<1.00**	<1.0	<1.0				
Nitrate Nitrogen	mg/L	**<1.00**	<1.0	<1.0	<10	20	n/a	<10
Phosphorus (Dissolved)	mg/L	**<0.10**	<0.10	<0.10	<0.11	<0.5	<0.5	<0.2
Potassium (Dissolved)	mg/L	**<0.60**	1.60	1.50	soil affect	soil affect	n/a	<15
Sulphur (Dissolved)	mg/L	**130.00**	110.00	110.00	<130	330	n/a	<5.0

Zinc (Dissolved)	mg/L	**0.43**	<0.02	<0.02	<5	20	<2.0	<2.0
Total Dissolved Ions	mg/L	**1000.00**	**1000.00**	**1000.00**	**<600**	3000-14000	600-2500	400-850

Water Comments.

Electrical Conductivity: a measure of the water's salinity.

Irrigation – Garden: ***Refer to Salinity Class***

Stock: *Satisfactory for Pigs, Poultry, Horses, Dairy Cattle, Beef Cattle and Sheep*

Domestic Uses: ***Where the EC > 0.8 dS/m, hard scale formation can be a problem for laundry and hot water systems, particularly with electric heating elements. Problems of corrosion, lathering and scale formation increase with conductivity until at 3.0 dS/m detergents and water softeners can no longer be used. Dilute with a better source of water (e.g. rainwater) or purify by using water softeners or desalination units.***

Drinking: ***Unacceptable >1.60 Treatment of water by water softeners or desalination units may be considered, but dilution with good quality water may be the best option if the quality is below tolerance. Use rainwater where possible.***

pH: a measure of acidity or alkalinity, neutral water has a pH of 7.0

Irrigation – Garden: *Satisfactory for most plants.*

Stock: *Satisfactory for all stock uses.*

Domestic Uses: *Satisfactory for domestic purposes.*

Drinking: *Water is within Australian Drinking Water Guidelines.*

Chloride: is an ion of common salts.

Irrigation – Garden: *Chloride concentration is below critical levels.*
Overhead Irrigation - 175mg/L – citrus, many other fruit and ornamentals, 350 mg/L - most vegetables, 700 mg/L – most field crops and pasture species.
Drip and Surface Irrigation - 350 mg/L - most fruit, vegetables and ornamentals. 700 mg/L – most field crops and pasture species.

Stock: *Satisfactory for all stock uses.*

Domestic Uses: *Satisfactory for domestic purposes.*

Drinking: *Water is within Australian Drinking Water Guidelines.*

Sodium: usually present in water sources as sodium chloride or salt.

Irrigation – Garden: *Satisfactory for most plants.*

Stock: *Satisfactory for all stock uses..*

Domestic Uses: *Satisfactory for domestic purposes.*

Drinking: *Water is within Australian Drinking Water Guidelines.*

Salinity Class: determined for irrigation purposes mainly.

Irrigation – Garden: ***3 – High Salinity - suitable for medium, high and very high salt tolerant plants.***
If water is saline use water efficient irrigation systems, e.g. drip, trickle to limit the amount of salt applied with the water.

Stock: *Satisfactory for all stock uses.*

Domestic Uses: ***Refer to the Electrical Conductivity Comments***

Drinking: ***Refer to the Electrical Conductivity Comments***

Residual Sodium Carbonate (RSC): represents the amount of sodium bicarbonate and carbonate in the water.

Irrigation – Garden: *Satisfactory for most plant.*