

## Soil Monitoring Data January 2021

Point 14

Published: 23 February 2021 Licensee: Cargill Newcastle EPL no.: 5810								
EPA Point ID	Date of Sampling	Date Results Received	Pollutant	Measurement Period & Monitoring Frequency Required by EPL	Units of Measure	January 2021		
						Min Value	Mean Value	Max Value
14 – Surface	19/01/2021	18/02/2021	pH	Yearly	pH	5.90	6.8	7.9
			Available Phosphorus (Bray)* (Fluoride Extractable)	Yearly	mg/kg	27.7	33.7	39.9
			Available Phosphorus (Colwell)** (bicarbonate Extractable)	Yearly	mg/kg	27	38	54
			Phosphorus as P (total)	3 - Yearly	mg/kg	240	366	614
			Phosphorus Sorption Capacity	3 - Yearly	mg P sorbed/kg soil	397	727	1210
			TKN	3 - Yearly	mg/kg	900	1,588	3,530
			Nitrate as N	3 - Yearly	mg/kg	1	6	19
			Nitrogen as N (total)	3 - Yearly	mg/kg	900	1,595	3,550
			Nitrogen Oxides	3 - Yearly	mg/kg	1	6	19
			Chloride	Yearly	mg/kg	10	23	40
			Conductivity	Yearly	µS/cm	31	84	155
			Exchangeable Calcium	Yearly	meq/100g	2.5	3.7	4.4
			Exchangeable Magnesium	Yearly	meq/100g	<0.2	0.2	0.9
			Exchangeable Potassium	Yearly	meq/100g	0.1	0.2	0.2
			Exchangeable Sodium	Yearly	meq/100g	0.2	0.3	0.3
			Cation Exchange Capacity	Yearly	meq/100g	3.4	4.5	5.8
Moisture	Yearly	%	3.8	12.1	25.5			
14 – Sub-Surface	19/01/2021	18/02/2021	pH	Yearly	pH	6.2	7.5	8.4
			Available Phosphorus (Bray)* (Fluoride Extractable)	Yearly	mg/kg	20.2	14.9	37.3
			Available Phosphorus (Colwell)** (bicarbonate Extractable)	Yearly	mg/kg	17	31	50
			Phosphorus as P (total)	3 - Yearly	mg/kg	206	300	405
			Phosphorus Sorption Capacity	3 - Yearly	mg P sorbed/kg soil	601	842	1030
			TKN	3 - Yearly	mg/kg	650	1,108	1,550

			Nitrate as N	3 - Yearly	mg/kg	1	4	10
			Nitrogen as N (total)	3 - Yearly	mg/kg	650	1,182	1,550
			Nitrogen Oxides	3 - Yearly	mg/kg	1	4	10
			Chloride	Yearly	mg/kg	40	40	40
			Conductivity	Yearly	µS/cm	50	96	147
			Exchangeable Calcium	Yearly	meq/100g	3.6	4.3	4.8
			Exchangeable Magnesium	Yearly	meq/100g	0.5	1	0.6
			Exchangeable Potassium	Yearly	meq/100g	<0.2	<0.2	<0.2
			Exchangeable Sodium	Yearly	meq/100g	0.2	0	0.2
			Cation Exchange Capacity	Yearly	meq/100g	3.6	4.8	5.8
			Moisture	Yearly	%	5.0	12.6	27.0

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						Min Value	Mean Value	Max Value
15 – Surface	19/01/2021	18/02/2021	pH	Yearly	pH	7.8	8.0	8.2
			Available Phosphorus (Bray)* (Fluoride Extractable)	Yearly	mg/kg	8.5	8.5	8.5
			Available Phosphorus (Colwell)** (bicarbonate Extractable)	Yearly	mg/kg	8	28	48
			Phosphorus as P (total)	3 - Yearly	mg/kg	140	219	363
			Phosphorus Sorption Capacity	3 - Yearly	mg P sorbed/kg soil	355	504	731
			TKN	3 - Yearly	mg/kg	580	857	1,390
			Nitrate as N	3 - Yearly	mg/kg	2	2	2
			Nitrogen as N (total)	3 - Yearly	mg/kg	580	857	1,390
			Nitrogen Oxides	3 - Yearly	mg/kg	2	2	3
			Chloride	Yearly	mg/kg	20	35	50
			Conductivity	Yearly	µS/cm	71	117	162
			Exchangeable Calcium	Yearly	meq/100g	1.9	2.9	4.9
			Exchangeable Magnesium	Yearly	meq/100g	0.0	0.2	0.0
			Exchangeable Potassium	Yearly	meq/100g	<0.2	0.2	0.2
			Exchangeable Sodium	Yearly	meq/100g	<0.2	0.2	0.2
			Cation Exchange Capacity	Yearly	meq/100g	1.9	2.9	4.9
Moisture	Yearly	%	7.4	17.8	26.3			
15 – Sub-surface	19/01/2021	18/02/2021	pH	Yearly	pH	7.8	8.1	8.5
			Available Phosphorus (Bray)* (Fluoride Extractable)	Yearly	mg/kg	13.2	13.2	13.2
			Available Phosphorus (Colwell)** (bicarbonate Extractable)	Yearly	mg/kg	25	14	26
			Phosphorus as P (total)	3 - Yearly	mg/kg	124	186	292
			Phosphorus Sorption Capacity	3 - Yearly	mg P sorbed/kg soil	309	368	407
			TKN	3 - Yearly	mg/kg	550	770	1,070

			Nitrate as N	3 - Yearly	mg/kg	1	1	1
			Nitrogen as N (total)	3 - Yearly	mg/kg	550	770	1,070
			Nitrogen Oxides	3 - Yearly	mg/kg	1	1	1
			Chloride	Yearly	mg/kg	20	30	40
			Conductivity	Yearly	µS/cm	73	98	123
			Exchangeable Calcium	Yearly	meq/100g	2.7	1.3	3.8
			Exchangeable Magnesium	Yearly	meq/100g	<0.2	<0.2	<0.2
			Exchangeable Potassium	Yearly	meq/100g	<0.2	<0.2	<0.2
			Exchangeable Sodium	Yearly	meq/100g	<0.2	<0.2	<0.2
			Cation Exchange Capacity	Yearly	meq/100g	2.2	1.3	3.8
			Moisture	Yearly	%	9.3	16.1	19.8

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						Min Value	Mean Value	Max Value
16 – Surface	19/01/2021	18/02/2021	pH	Yearly	pH	7.7	8.0	8.2
			Available Phosphorus (Bray)* (Fluoride Extractable)	Yearly	mg/kg	16.7	21.5	30.2
			Available Phosphorus (Colwell)** (bicarbonate Extractable)	Yearly	mg/kg	9	16	24
			Phosphorus as P (total)	3 - Yearly	mg/kg	232	263	303
			Phosphorus Sorption Capacity	3 - Yearly	mg P sorbed/kg soil	270	415	617
			TKN	3 - Yearly	mg/kg	1,020	1,170	1,450
			Nitrate as N	3 - Yearly	mg/kg	3	3	4
			Nitrogen as N (total)	3 - Yearly	mg/kg	1,020	1,170	1,450
			Nitrogen Oxides	3 - Yearly	mg/kg	1,020	1,170	1,450
			Chloride	Yearly	mg/kg	20	20	20
			Conductivity	Yearly	µS/cm	81	92	102
			Exchangeable Calcium	Yearly	meq/100g	2.8	3.9	4.6
			Exchangeable Magnesium	Yearly	meq/100g	<0.2	0.4	0.6
			Exchangeable Potassium	Yearly	meq/100g	0.0	0.2	0.0
			Exchangeable Sodium	Yearly	meq/100g	<0.2	0.1	0.0
			Cation Exchange Capacity	Yearly	meq/100g	2.8	4.2	5.1
Moisture	Yearly	%	4.5	11.2	16.5			
16 – Sub-surface	19/01/2021	18/02/2021	pH	Yearly	pH	8.0	8.1	8.3
			Available Phosphorus (Bray)* (Fluoride Extractable)	Yearly	mg/kg	12.7	7.6	21.9
			Available Phosphorus (Colwell)** (bicarbonate Extractable)	Yearly	mg/kg	7	12	18
			Phosphorus as P (total)	3 - Yearly	mg/kg	127	177	218
			Phosphorus Sorption Capacity	3 - Yearly	mg P sorbed/kg soil	256	296	318
			TKN	3 - Yearly	mg/kg	540	690	840

			Nitrate as N	3 - Yearly	mg/kg	2	3	4
			Nitrogen as N (total)	3 - Yearly	mg/kg	540	690	840
			Nitrogen Oxides	3 - Yearly	mg/kg	2	3	4
			Chloride	Yearly	mg/kg	10	10	10
			Conductivity	Yearly	µS/cm	80	99	127
			Exchangeable Calcium	Yearly	meq/100g	2.3	2.9	4.0
			Exchangeable Magnesium	Yearly	meq/100g	<0.2	0.2	0.2
			Exchangeable Potassium	Yearly	meq/100g	<0.2	0.2	0.2
			Exchangeable Sodium	Yearly	meq/100g	<0.2	0.2	0.2
			Cation Exchange Capacity	Yearly	meq/100g	2.5	1.4	4.0
			Moisture	Yearly	%	5.8	10.3	15.5

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						Min Value	Mean Value	Max Value
17 – Surface	19/01/2021	18/02/2021	pH	Yearly	pH	6.7	7.1	7.5
			Available Phosphorus (Bray)* (Fluoride Extractable)	Yearly	mg/kg	28	61.1	120
			Available Phosphorus (Colwell)** (bicarbonate Extractable)	Yearly	mg/kg	30	56	96
			Phosphorus as P (total)	3 - Yearly	mg/kg	293	543.5	882
			Phosphorus Sorption Capacity	3 - Yearly	mg P sorbed/kg soil	458	874.3	1,300
			TKN	3 - Yearly	mg/kg	1,550	2,248.3	3,680
			Nitrate as N	3 - Yearly	mg/kg	3.3	13.9	50.4
			Nitrogen as N (total)	3 - Yearly	mg/kg	1,550	2,260.0	3,680
			Nitrogen Oxides	3 - Yearly	mg/kg	3.3	14.1	50.7
			Chloride	Yearly	mg/kg	10	42	70
			Conductivity	Yearly	µS/cm	66	114	186
			Exchangeable Calcium	Yearly	meq/100g	3.7	6.9	9.3
			Exchangeable Magnesium	Yearly	meq/100g	1	0.9	1.3
			Exchangeable Potassium	Yearly	meq/100g	0.2	0.3	0.5
			Exchangeable Sodium	Yearly	meq/100g	0.1	0.6	1
			Cation Exchange Capacity	Yearly	meq/100g	4	8.5	11.2
Moisture	Yearly	%	8.8	21.5	30.5			
17 – Sub-surface	19/01/2021	18/02/2021	pH	Yearly	pH	7.9	8.1	8.3
			Available Phosphorus (Bray)* (Fluoride Extractable)	Yearly	mg/kg	25.4	39.7	87.8
			Available Phosphorus (Colwell)** (bicarbonate Extractable)	Yearly	mg/kg	17.0	31	54.0
			Phosphorus as P (total)	3 - Yearly	mg/kg	165.0	237.8	331.0
			Phosphorus Sorption Capacity	3 - Yearly	mg P sorbed/kg soil	449.0	637.0	819.0
			TKN	3 - Yearly	mg/kg	430.0	871.7	1,450.0

			Nitrate as N	3 - Yearly	mg/kg	1.7	2.4	4.4
			Nitrogen as N (total)	3 - Yearly	mg/kg	430.0	871.7	1,450.0
			Nitrogen Oxides	3 - Yearly	mg/kg	1.7	2.4	4.4
			Chloride	Yearly	mg/kg	10	30	60
			Conductivity	Yearly	µS/cm	90	120	164
			Exchangeable Calcium	Yearly	meq/100g	2.5	3.0	3.9
			Exchangeable Magnesium	Yearly	meq/100g	<0.2	<0.2	<0.2
			Exchangeable Potassium	Yearly	meq/100g	<0.2	<0.2	<0.2
			Exchangeable Sodium	Yearly	meq/100g	<0.2	0.3	0.7
			Cation Exchange Capacity	Yearly	meq/100g	2.5	3.2	4.7
			Moisture	Yearly	%	7.6	17.2	23.0