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Interpretation of lab data and graphical results for two paddocks for comparison (P1and P2).

P1 had 36 subsamples taken at three depths 0 - 15, 15 - 30 and 30 -50 cm. P1 is a cropping paddock: recently growing cereals.



Each paddock data set was graphed to compare the three

depths and then the topsoil from both paddocks also graphed for comparison.



Figure 1 P1 Graphical Results 0-15, and 15 – 30 and 30 – 50 cm

P1 Interpretation

- pH levels are fine in top two depths (0 15 and 15 30 cm) but low at 30 50 cm.
- CEC levels across the depths are all low consistent with sandy loam to sand (1.68, 1.57 and 0.84).
- P levels are all low.
- Most parameters are reduced as the depth increases except for Sodium which increases at 15 30 cm then decreases again. Iron increases over depth.
- PBI is all low but slightly increases over depth (higher PBI soil binds P).
- Total P indicates some P is available via microbial activity to plant also.



- Potassium is low to very low at depth. at depth.
- Low Magnesium decreases further with depth.
- Calcium is also low to very low at depth. The Ca:Mg ratio is in balance however with both parameters being low to very low.
- Sodium also very low at all depths.
- Trace elements (Copper, Iron and Manganese) are all low except for zinc which is sufficient at 0 30 cm and deficient at depth.
- Boron is low across all (0.13, 0.11 and <0.1).
- Nitrate Nitrogen is low to very low decreasing at depth.
- The C:N ratio is low improving at depth, low ratio generally indicates sufficient N in the system if high organic matter is existing. All soils in the wheatbelt have a typically low OM content so keep an eye on N levels.
- The balance of Nitrate to Ammonium Nitrogen is quite good (5.8:3.4, 5.6:2.8 and 2:1.2) indicating good mineralisation is occurring.
- Total Nitrogen levels are ok showing some N in the system and the fact that mineralisation is occurring is positive.



• Sulphur levels are also low across the profile.

Paddock 2 (P2) had 34 sub samples taken for each depth, 0 - 15, 15 - 30 and 30 - 50 cm. Paddock use is pasture/grazing.



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pH LEVEL IDO 6.35 6.41 6.39	CONDUCTIVITY 135 114 90		MEANING OF COLOUIS VERY LOW LOY	N TAROET EXCESS			
SOIL NUTRIENT STATUS			LEAF NUTRIENT STATUS N				
P 5		1	P				
K 79.691 35.543 77.357			κ				
Ma00.866 00.866 00.88			Mg				
Ca 183.8 157.6	56		Ca				
7.13 5.52 5.52 Cu			Cu				
0.14 0.11 Za	11	:	Za				
140 141 149			Fe				
Ma 1.9			Mn				
1.5 NO2 1.6 1.7		1	в				
\$04 11 3.5 3.8			5				
MEANING OF COLOURS BELOW SEDIOUS IMBALANCE	IMBALANCE	TARCE	ET NBR	OUS IMBALANCE			
CATION RELATIONSHIP Cafe RATIO 7.2641 7.2601 5.5114	ORGANIC MATTER 1.5138 1.3572 1.1832	CEC (EFFECTIVE) ME0/1000 1.4522 1.0314 0.9158		EXCHANOBABLE CALCIUM % 75.964 74.857 73.576			
CATION Ca/Mg RATIO 8.2939 7.8467 7.6438	TOTAL NETROGEN 730 700 620	EXCHANGEA	15LE: POTASSIUM 56 5.9941 5.9446 6.5359	EXCERANCEGABLE SOCIUM % 1.8398 1.9544 2.2409			
CATION RELATIONSIBP K.Mg/Cs 15.178 15.219 13.671	C/N RATEO 11.918 11.143 10.968	EXCHANGEA	BLE MAGNESRIM % 15.015 15.635 15.78	EXCHANOSABLE ALUMINUM % 1.3772 1.599 2.1838			

Figure 2 P2 Graphical Results 0-15, 15 - 30 and 30 - 50 cm

P2 Interpretation

- pH levels are fine in all 3 depths.
- CEC levels are low and decreasing consistent with sandy loam to sand at depth.
- P levels are low to very low through the depths.
- Most parameters are reduced as the depth increases except for iron which decreases then increases.
- PBI is on the very low end of the scale indicating plant available P if applied (higher PBI soil binds P).
- Total P indicates some P is available via microbial activity to plant also.
- Potassium is very low in all depths to 50 cm.
- Low to very low Magnesium across all depths.
- Calcium is also low in all depths.
- The Ca:Mg ratio is in balance but both parameters are too low.
- Sodium also very low at all depths.
- Trace elements (Copper, Iron and Manganese) are all very low with Zinc being sufficient in the top 15 cm and low below.
- Boron is low at 0.12, <0.1 and <0.1.
- Nitrate Nitrogen is very low.
- The low C:N ratio indicates sufficient N in the system if high organic matter is existing. All soils in the wheatbelt have a typically low OM content so keep an eye on N levels as organic matter is low.
- The balance of Nitrate to Ammonium Nitrogen is not good (2.4:2.5, 1.6:1.8



and 1.7:1.7) indicating little mineralisation is occurring.

• Total Nitrogen levels do indicate some N is in the system.

The topsoil across both paddocks was also further investigated and graphed for comparisons.

pH LEVIE, HDO 5.18 5.35	CONDUCTIVITY 207		MEANING OF COLOURS VIERY LOW LOT	W TARGET EXCESS			
SOIL NUTRIENT STATUS			LEAF NUTRIENT STATUS N				
P0			P				
K 0.457			κ				
77.471 Mg 01.154			Ma				
50.866 Ca			Ċ.				
256 Par713			24a				
7.13 Cu			Cu				
0.21 Za	1.1		Zn				
Fe10	1.1		Fe				
5.4 Ma			Min				
3	5.8		в				
5.6			s				
4.1							
MEANING OF COLOURS BELOW SERIOUS IMBALANCE	IMBALANCE	TAR	RORT SERV	OUS IMBALANCE			
CATION RELATIONSHIP CAR RATIO 5.7028 7.2541	0ROANIC MATTER 1.4258 1.5138	CEC (IFFECTIVE) MEG-1000 1.3431 1.4522		EXCHANOFABLE CALCIUM % 73.529 75.964			
CATION CarMg RATIO 7.5338 8.2939	TOTAL NETROEEN 120 730	EXCHANCE	EABLE POTASSIUM % 7.4706 5.9941	EXCHANORABLE SCOULM % 1.8235 1.8398			
CATION RELATIONSHIP K.Mg/Ca 11.584 15.178	C/N RATEO 10 11.918	EXCHANGE	EABLE MAGNESELM % 16 15.015	IEXCERANCEABLE ALL/MINUM % 1.4891 1.3772			

Figure 3 P1 Vs P2 0-15 cm

P1 Vs P2 Interpretation (0 – 15 cm)

- pH levels are fine in both paddocks.
- CEC levels are low and similar consistent with sand.
- P levels are low in both.
- PBI is on the very low end of the scale in both (higher PBI soil binds P).
- Total P indicates some P is available via microbial activity to plant also in both paddocks being slightly higher in-House Paddock.
- Potassium is very low in both paddocks but slightly higher also in House Paddock.
- Magnesium is low in both paddocks but slightly higher in House Paddock.
- Calcium is also low in both paddocks, incrementally higher in Windmill Paddock.



- The Ca:Mg ratio is in balance in both paddocks but both parameters are too low.
- Sodium also very low in both.
- Trace elements (Copper, Iron and Manganese) are all very low with Zinc being sufficient in the top 15 cm in both paddocks.
- Boron is low in both at 0.12 and 0.13.
- Nitrate Nitrogen is very low in both, but just slightly higher in House Paddock.
- Both paddocks are very similar with only incremental variance, with some slightly higher parameters in House Paddock.
- The biggest difference is that there seems to be more N mineralisation in House paddock also highlighted by the Nitrate and N and Ammonium N balance.
- Total Nitrogen levels in both do indicate some N is in the system with P1 again ever so slightly higher.



Soil Test Raw Data

		P1_ST_0_	P1-ST-15-	P1-ST-30-	P2-ST-0-	P2-ST-15-	P2-ST-30-
SampleName		15-29	30-30	50-31	15-32	30-33	50-34
SampleDepth		0-15	15-30	30-50	0-15	15-30	30-50
	n Li unita	6 10	13-30 E 08	50-50	6.25	6.41	6 30
pH 1:5 water	pH units	0.18	5.98	06.C	0.30	0.41	6.39
pH CaCl2			F 00	4.00	- 01	5.04	5.0
(following 4A1)	pH units	5.52	5.23	4.82	5.61	5.61	5.6
Organic	%						
Carbon (W&B)	(40°C)	0.82	0.75	0.52	0.87	0.78	0.68
MIR - Aus Soil		Sandy	Sandy				
Texture		loam	loam	Sand	Sand	Sand	Sand
Nitrate - N (2M							
KCI)	mg/kg	5.8	5.6	2	2.4	1.6	1.7
Ammonium - N							
(2M KCI)	ma/ka	34	28	12	25	18	17
	iiig/kg	0.4	2.0	1.2	2.0	1.0	1.7
Colwell		10	10	c	0	-	-5
Phosphorus	тіу/ку	10	10	0	9	5	<5
PBI + Col P		4	14	16	4	/	/
Total							
Phosphorus	mg/kg	62	58	23	49	39	36
Colwell							
Potassium	mg/kg	55	49	26	44	79	28
KCI Sulfur (S)	mg/kg	5.6	4.7	5	4.1	3.5	3.8
Calcium (Ca) -	-		İ			1	1
NH4CI/BaCi2	ma/ka	250	231	105	257	184	158
Magnesium	5 5						
(Ma) -							
	malka	22	21	10	21	22	21
NH4CI/BaCIZ	шу/ку	33	31	10	31	23	21
Potassium (K) -		50	40				07
NH4CI/BaCi2	mg/kg	50	42	29	39	28	27
Sodium							
(NH4Cl/BaCl2)	mg/kg	7.1	7.6	4.9	7.2	5.5	5.5
Calcium (Ca) -							
NH4CI/BaCl2	cmol/kg	1.25	1.15	0.524	1.28	0.919	0.788
Magnesium							
(Ma) -							
NH4CI/BaCl2	cmol/kg	0.272	0.253	0.145	0.253	0.192	0.169
Potassium (K) -	0						
NH4Cl/BaCl2	cmol/ka	0 127	0 107	0.073	0 101	0.073	0.07
Sodium	omowng	0.127	0.107	0.070	0.101	0.070	0.07
	omol/ka	0.021	0.022	0.021	0.021	0.024	0.024
	сполку	0.031	0.033	0.021	0.031	0.024	0.024
Ca:Mg ratio		4.6	4.5	3.6	5.1	4.8	4.7
K:Mg ratio		0.47	0.42	0.51	0.4	0.38	0.42
GTRI					0.07	0.07	0.07
ECR	%	9.4	9.1	12	7.9	8	8.9
Exchangeable							
acidity	cmol/kg	< 0.02	0.03	0.08	<0.02	< 0.02	< 0.02
Exchangeable							
aluminium	cmol/kg	< 0.02	<0.02	< 0.02	<0.02	< 0.02	< 0.02
Exchangeable	Ű						
hydrogen	cmol/ka	<0.02	0.02	0.06	<0.02	<0.02	<0.02
ECEC	cmol/ka	1.68	1.57	0.84	1.67	1.21	1.05
Coloium	0/	74.2	72.2	62.2	76.0	76.1	75
Magnasium	/0	16.0	75.5	17.0	15.0	15.0	16.1
magnesium Detection	/0	10.2	10.1	07	13.2	10.9	10.1
Potassium	%	7.6	6.8	8.7	6	6	6.7
Sodium	%	1.8	2.1	2.5	1.9	2	2.3
Aluminium	%	0	0.3	2	0	0	0
Hydrogen	%	0	1.4	7.4	0	0	0
Salinity EC 1:5	dS/m	0.069	0.05	0.02	0.045	0.038	0.03
Ece	dS/m	0.97	0.71	0.47	1	0.88	0.7
Boron	mg/kg	0.13	0.11	<0.1	0.12	<0.1	<0.1
Iron (Fe)	ma/ka	10	17	21	5.4	4.3	5.4
Mandanese	5 5	-				-	
(Mn)	ma/ka	4	26	0.7	3	19	13
Copper (Cu)	ma/ka	0.32	03	0.12	0.21	0.14	0.11
	mg/kg	1 1	0.0	0.12	11	0.14	0.11
	шу/кд	1.1	0.00	U.Z I	1.1	0.09	0.41
	0/	0.000	0.070	0.000	0.070	0.07	0.000
Nitrogen	% dry wt	0.082	0.073	0.036	0.0/3	0.07	0.062
TDS	mg/L	44	32	13	29	24	19
MIR CaCO3							
equiv	%	<1	<1	<1	<1	<1	<1
MIR Tot IC	%	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Total Carbon	% dry wt	0.68	0.59	<0.2	0.65	0.53	0.45

