Project Name: **Soil Changes under Agriculture**
Project Code: **Paired** **Site ID:** **M2** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (SA)**

Site Information

Desc. By: N.J. McKenzie
Date Desc.: 23/05/89
Map Ref.: Sheet No. : 6629 1:100000
Northing/Long.: 6216300 AMG zone: 54
Easting/Lat.: 289100 Datum: AGD66
Locality: S.E. Rhynie
Elevation: No Data
Rainfall: No Data
Runoff: No Data
Drainage: No Data

Geology

ExposureType: Soil pit
Geol. Ref.: No Data
Conf. Sub. is Parent. Mat.: No Data
Substrate Material: Soil pit, Shale

Land Form

Rel/Slope Class: No Data
Morph. Type: No Data
Elem. Type: No Data
Slope: %
Pattern Type: No Data
Relief: No Data
Slope Category: No Data
Aspect: No Data

Surface Soil Condition (dry):

Erosion:

Soil Classification

Australian Soil Classification:
N/A
ASC Confidence:
Confidence level not specified
Mapping Unit: N/A
Principal Profile Form: Dr4.23
Great Soil Group: Red-brown earth

Site Disturbance: No effective disturbance. Natural

Vegetation:

Surface Coarse Fragments:

Profile Morphology

A11	0 - 0.05 m	Very dark brown (7.5YR2/2-Moist); ; Moderately moist; Very weak consistence; Non-plastic; Non-sticky; Field pH 6.5 (Raupach); Abrupt, Smooth change to -
A2	0.05 - 0.1 m	Dark reddish brown (5YR3/3-Moist); Reddish brown (5YR4/4-Dry); Mottles, 7.5YR32, 10-20% , 5-15mm, Distinct; Sandy clay loam; Weak grade of structure, 5-10 mm, Polyhedral; Weak grade of structure, 20-50 mm, Subangular blocky; Earthy fabric; Moist; Weak consistence; Slightly plastic; Normal plasticity; Slightly sticky; Field pH 6 (Raupach); Clear, Smooth change to -
A31	0.1 - 0.2 m	Dark reddish brown (5YR3/2-Moist); Mottles, 5YR34, 20-50% , 5-15mm, Distinct; Fine sandy clay loam; Weak grade of structure, 5-10 mm, Polyhedral; Weak grade of structure, 20-50 mm, Subangular blocky; Earthy fabric; Moist; Weak consistence; Slightly plastic; Normal plasticity; Slightly sticky; 2-10%, coarse gravelly, 20-60mm, subangular tabular, dispersed, Shale, coarse fragments; Field pH 7 (Raupach); Gradual, Smooth change to -
A32	0.2 - 0.24 m	Dark reddish brown (5YR3/2-Moist); Mottles, 5YR34, 20-50% , 5-15mm, Distinct; Clay loam; Weak grade of structure, 10-20 mm, Polyhedral; Rough-ped fabric; Moist; Firm consistence; Moderately plastic; Normal plasticity; Moderately sticky; 2-10%, bouldery, 600mm-2m, subangular tabular, dispersed, Shale, coarse fragments; Few cutans, <10% of ped faces or walls coated; Field pH 7 (Raupach); Clear, Smooth change to -
B21	0.24 - 0.3 m	Yellowish red (5YR3/6-Moist); Mottles, 2.5YR34, 2-10% , 15-30mm, Faint; Medium clay; Strong grade of structure, 20-50 mm, Angular blocky; Moderate grade of structure, 100-200 mm, Prismatic; Smooth-ped fabric; Moderately moist; Very firm consistence; Very plastic; Superplastic; Very sticky; 0-2%, medium gravelly, 6-20mm, subangular tabular, dispersed, Shale, coarse fragments; Many cutans, >50% of ped faces or walls coated, prominent; Field pH 7.5 (Raupach);
B21	0.3 - 0.4 m	Yellowish red (5YR3/6-Moist); Mottles, 2.5YR34, 10-20% , 15-30mm, Faint; Medium clay; Strong grade of structure, 20-50 mm, Angular blocky; Moderate grade of structure, 100-200 mm, Prismatic; Smooth-ped fabric; Moderately moist; Very firm consistence; Very plastic; Superplastic; Very sticky; 0-2%, medium gravelly, 6-20mm, subangular tabular, dispersed, Shale, coarse fragments; Many cutans, >50% of ped faces or walls coated, prominent; Field pH 7.5 (Raupach); Diffuse, Smooth change to -

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B22	0.4 - 0.5 m	Dark red (2.5YR3/6-Moist); Mottles, 2.5YR34, 20-50% , 30-mm, Distinct; Heavy clay; Strong grade of structure, 20-50 mm, Angular blocky; Moderate grade of structure, 100-200 mm, Prismatic; Smooth-ped fabric; Moderately moist; Very firm consistence; Very plastic; Normal plasticity; Very sticky; Many cutans, >50% of ped faces or walls coated, prominent; Field pH 8 (Raupach);
B22	0.5 - 0.6 m	Dark red (2.5YR3/6-Moist); Mottles, 2.5YR34, 20-50% , 30-mm, Distinct; Heavy clay; Moderate grade of structure, 20-50 mm, Angular blocky; Smooth-ped fabric; Moderately moist; Very firm consistence; Very plastic; Normal plasticity; Very sticky; Many cutans, >50% of ped faces or walls coated, prominent; Field pH 8 (Raupach); Gradual, Smooth change to -
B23	0.6 - 0.67 m	Dark red (2.5YR3/6-Moist); Mottles, 2.5YR34, 10-20% , 30-mm, Distinct; Heavy clay; Moderate grade of structure, 10-20 mm, Polyhedral; Smooth-ped fabric; Moderately moist; Firm consistence; Very plastic; Normal plasticity; Very sticky; Common cutans, 10-50% of ped faces or walls coated, distinct; , Calcareous, Fine (0 - 2 mm), Soft segregations; Field pH 8 (Raupach); Gradual, Smooth change to -
B3	0.67 - 0.85 m	Red (2.5YR4/6-Moist); Mottles, 2.5YR32, 10-20% , 15-30mm, Distinct; Moderate grade of structure, 5-10 mm, Polyhedral; Rough-ped fabric; Firm consistence; Very plastic; Normal plasticity; Very sticky; 20-50%, coarse gravelly, 20-60mm, angular tabular, undisturbed, Shale, coarse fragments; Few cutans, <10% of ped faces or walls coated, faint; Many (20 - 50 %), Calcareous, Very coarse (20 - 60 mm), Soft segregations; Field pH 8.5 (Raupach); Gradual, Irregular change to -
BC	0.85 - 0.9 m	; 50-90%, cobbly, 60-200mm, Shale, coarse fragments;

Morphological Notes

Observation Notes

Undisturbed Red-Brown Earth - paired with M1

Site Notes

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Laboratory Test Results:

Depth	pH	1:5 EC	Exchangeable Cations				Exchangeable	CEC	ECEC	ESP
			Ca	Mg	K	Na	Acidity			
m		dS/m	Cmol (+)/kg							%
0 - 0.05	6.1C 6.3A	0.32A	48.5D	13.6	1.3	1.1		64L	64.6D	1.72
0.05 - 0.1	5.7C 6.1A	0.19A	11.2D	3.7	1.2	0.49		16.8L	16.6D	2.92
0.1 - 0.2	6.8C 7.1A	0.17A	7.4D	2.8	1.3	0.48		12.6L	12D	3.81
0.2 - 0.24	7.1C 7.3A	0.16A	7.1D	2.6	1.2	0.41		13.5L	11.3D	3.04
0.24 - 0.3	6.6C 7.1A	0.2A	11.9D	3.8	1.8	1.1		19L	18.6D	5.79
0.3 - 0.4	6.8C 7.2A	0.55A	21.7D	7	3.1	2.4		34.2L	34.2D	7.02
0.4 - 0.5	6.9C 7.3A	0.7A	21.8D	6.3	2.8	2.1		34.4L	33D	6.10
0.5 - 0.6	6.9C 7.2A	0.87A	24.6D	7.5	2.8	3		37.6L	38D	7.98
0.6 - 0.7	7.9C 8.2A	0.85A	21.5E	6	1.6	1.6		27.3B	30.8D	5.86
0.7 - 0.8	8C 8.2A	0.95A	21.4E	5.2	1.2	1.1		24.4B	28.8D	4.51

Depth	CaCO3	Organic C	Avail. P	Total P	Total N	Total K	Bulk Density	Particle Size Analysis				
								GV	CS	FS	Silt	Clay
m	%	%	mg/kg	%	%	%	Mg/m3			%		
0 - 0.05	<0.1B	20.3A					0.53		5A	33	16	18
0.05 - 0.1	<0.1B	2.3A					1.29		7A	55	19	18
0.1 - 0.2	<0.1B	1.2A					1.50		6A	53	18	21
0.2 - 0.24	<0.1B	1A							4A	52	19	21
0.24 - 0.3	<0.1B	0.9A					1.34		3A	44	16	33
0.3 - 0.4	<0.1B	0.8A							1A	23	8	65
0.4 - 0.5	<0.1B	0.6A							1A	20	7	69
0.5 - 0.6	<0.1B	0.6A							0A	18	8	70
0.6 - 0.7	0.2B	0.5A							1A	33	16	48
0.7 - 0.8	2.5B	0.5A							1A	31	27	38

Depth	COLE	Gravimetric/Volumetric Water Contents						K sat	K unsat
		Sat.	0.05 Bar	0.1 Bar	0.5 Bar	1 Bar	5 Bar	15 Bar	
m		g/g - m3/m3						mm/h	mm/h
0 - 0.05	0.08A		0.24G					0.1F	
0.05 - 0.1	0.02A		0.26G					0.08F	
0.1 - 0.2	0.02A		0.27G					0.09F	
0.2 - 0.24									
0.24 - 0.3	0.09A		0.44G					0.13F	
0.3 - 0.4									
0.4 - 0.5									
0.5 - 0.6									
0.6 - 0.7									
0.7 - 0.8									

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Laboratory Analyses Completed for this profile

15B2_CA	Exchangeable bases (Ca2+,Mg2+,Na+,K+) - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15B2_CEC	CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15B2_K	Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15B2_MG	Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15B2_NA	Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15C1_CA	Exchangeable bases (Ca2+,Mg2+,Na+,K+) - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble salts
15C1_CEC	CEC - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble salts
15C1_K	Exchangeable bases and CEC - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble salts
15C1_MG	Exchangeable bases and CEC - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble salts
15C1_NA	Exchangeable bases and CEC - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble salts
15J_BASES	Sum of Bases
15N1	Exchangeable sodium percentage (ESP)
19B1	Carbonates - manometric
3A1	EC of 1:5 soil/water extract
4A1	pH of 1:5 soil/water suspension
4B2	pH of 1:5 soil/0.01M calcium chloride extract - following Method 4A1
5A2	Chloride - 1:5 soil/water extract, automated colour
6A1	Organic carbon - Walkley and Black
P10_CF_C	Clay (%) - Coventry and Fett pipette method
P10_CF_CS	Coarse sand (%) - Coventry and Fett pipette method
P10_CF_FS	Fine sand (%) - Coventry and Fett pipette method
P10_CF_Z	Silt (%) - Coventry and Fett pipette method
P3A1	Bulk density - g/cm3
P3B2VL_15	15 BAR Moisture m3/m3 - Volumetric using disturbed sample on pressure plate
P3B4VL_005	0.05 BAR Moisture m3/m3 - Volumetric of soil clods (Soil Survey Staff,1967)
P5_COLE	Coefficient of Linear Extensibility (Grossman et al. 1968)