Project Name: **Soil Changes under Agriculture**
Project Code: **Paired** **Site ID:** **M6** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (SA)**

Site Information

Desc. By: N.J. McKenzie
Date Desc.: 06/04/89
Map Ref.: Sheet No. : 6629 1:100000
Northing/Long.: 6214200 AMG zone: 54
Easting/Lat.: 288400 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: No Data

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: Ug5.12
Great Soil Group: Black earth

Site Disturbance: No effective disturbance. Natural

Vegetation:

Surface Coarse Fragments:

Profile Morphology

A1	0 - 0.1 m	Very dark greyish brown (10YR3/2-Moist); Very dark greyish brown (10YR3/2-Dry); ; Medium clay; Strong grade of structure, 20-50 mm, Polyhedral; Strong grade of structure, 2-5 mm, Granular; Rough-ped fabric; Fine, (0 - 5) mm crack; Dry; Strong consistence; Few cutans, <10% of ped faces or walls coated, faint; Field pH 7 (Raupach); Gradual, Smooth change to -
B1	0.1 - 0.2 m	Brown (7.5YR4/2-Moist); ; Medium heavy clay; Strong grade of structure, 20-50 mm, Polyhedral; Weak grade of structure, 2-5 mm, Polyhedral; Rough-ped fabric; Fine, (0 - 5) mm crack; Dry; Strong consistence; Few cutans, <10% of ped faces or walls coated, faint; Field pH 7.5 (Raupach); Gradual, Smooth change to -
B21	0.2 - 0.3 m	Very dark greyish brown (10YR3/2-Moist); ; Heavy clay; Strong grade of structure, 20-50 mm, Polyhedral; Weak grade of structure, 5-10 mm, Polyhedral; Smooth-ped fabric; Medium, (5 - 10) mm crack; Dry; Strong consistence; Many cutans, >50% of ped faces or walls coated, distinct; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 8 (Raupach);
B21	0.3 - 0.4 m	Very dark greyish brown (10YR3/2-Moist); ; Heavy clay; Strong grade of structure, 20-50 mm, Polyhedral; Weak grade of structure, 5-10 mm, Polyhedral; Smooth-ped fabric; Medium, (5 - 10) mm crack; Dry; Very strong consistence; Many cutans, >50% of ped faces or walls coated, distinct; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 8 (Raupach); Gradual, Smooth change to -
B22	0.4 - 0.5 m	Very dark greyish brown (10YR3/2-Moist); ; Heavy clay; Strong grade of structure, 50-100 mm, Prismatic; Weak grade of structure, 5-10 mm, Polyhedral; Smooth-ped fabric; Medium, (5 - 10) mm crack; Dry; Very strong consistence; Many cutans, >50% of ped faces or walls coated, prominent; Few (2 - 10 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 8.5 (Raupach);
B22	0.5 - 0.6 m	Very dark greyish brown (10YR3/2-Moist); ; Heavy clay; Strong grade of structure, 50-100 mm, Prismatic; Weak grade of structure, 5-10 mm, Polyhedral; Smooth-ped fabric; Medium, (5 - 10) mm crack; Dry; Very strong consistence; Many cutans, >50% of ped faces or walls coated, prominent; Few (2 - 10 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 8.5 (Raupach); Clear, Smooth change to -
B31	0.6 - 0.8 m	Brown (7.5YR4/3-Moist); Mottles, 10YR41, 10-20% , 30-mm, Distinct; Heavy clay; Moderate grade of structure, 20-50 mm, Polyhedral; Smooth-ped fabric; Medium, (5 - 10) mm crack; Moderately moist; Very strong consistence; Many cutans, >50% of ped faces or walls coated, prominent; Common (10 - 20 %), Calcareous, Medium (2 -6 mm), Soft segregations; Field pH 9 (Raupach);

Project Name: **Soil Changes under Agriculture**
Project Code: **Paired** **Site ID:** **M6** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (SA)**

B31	0.8 - 1.1 m	Brown (7.5YR4/3-Moist); Mottles, 10YR41, 20-50% , 30-mm, Distinct; Heavy clay; Smooth-ped fabric; Moderately moist; Very strong consistence; Many cutans, >50% of ped faces or walls coated, prominent; Common (10 - 20 %), Calcareous, Medium (2 -6 mm), Soft segregations; Field pH 9 (Raupach); Gradual, Smooth change to -
B32	1.1 - 1.4 m	Brown (7.5YR5/4-Moist); Mottles, 7.5YR53, 2-10% , 30-mm, Distinct; Heavy clay; Smooth-ped fabric; Moist; Very strong consistence; Few (2 - 10 %), Calcareous, Fine (0 - 2 mm), Soft segregations; Field pH 9 (Raupach); Clear, Smooth change to -
B33	1.4 - 1.58 m	Light yellowish brown (10YR6/4-Moist); ; Moist; 0-2%, fine gravelly, 2-6mm, angular, undisturbed, Dolerite, coarse fragments; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Soft segregations; Field pH 9 (Raupach); Abrupt, Smooth change to -
R	1.58 - m	Rock

Morphological Notes

Observation Notes

Undisturbed Black Earth - paired with M5

Site Notes

Project Name: Soil Changes under Agriculture
Project Code: Paired **Site ID:** M6 **Observation ID:** 1
Agency Name: CSIRO Division of Soils (SA)

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 - 0.1	6.9C 7.2A	0.11A	39.4D	9.7	2	0.71		50L	51.9D	1.42
0.1 - 0.2	7.5C 8.1A	0.15A	41.7E	8.6	1.4	0.8		50.2B	52.4D	1.59
0.2 - 0.3	7.9C 8.6A	0.17A	36.3E	10.9	1.1	2.1		51.5B	50.4D	4.08
0.3 - 0.4	8C 8.8A	0.19A	33.7E	12.3	1	2.8		48.8B	49.8D	5.74
0.4 - 0.5	8.2C 8.9A	0.26A	32.2E	13.1	1.1	4		50.4B	50.4D	7.94
0.5 - 0.6	8.3C 9.1A	0.32A	26.7E	13.8	1.2	6.1		50.1B	47.8D	12.18
0.6 - 0.8	8.4C 9.2A	0.48A	19.7E	11.2	0.99	7		44.1B	39D	15.87
0.9 - 1	8.5C 9.2A	0.76A	19.3E	15	1.2	13.9		47.2B	49.3D	29.45

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 - 0.1	<0.1B	2.1A					1.17		4A	24	14	55
0.1 - 0.2	<0.1B	1.5A					1.13		3A	24	15	57
0.2 - 0.3	0.2B	0.9A					1.10		3A	22	12	60
0.3 - 0.4	0.2B	0.8A					1.14		3A	24	13	56
0.4 - 0.5	0.1B	0.8A							3A	24	12	59
0.5 - 0.6	0.1B	0.8A					1.18		4A	25	14	57
0.6 - 0.8	0.5B	0.7A							3A	24	11	59
0.9 - 1	1B	0.6A							2A	22	10	63

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 - 0.1	0.01A		0.35G					0.26F	
0.1 - 0.2	0.14A		0.5G					0.26F	
0.2 - 0.3	0.15A		0.51G					0.27F	
0.3 - 0.4	0.14A		0.44G					0.28F	
0.4 - 0.5									
0.5 - 0.6	0.15A		0.5G					0.28F	
0.6 - 0.8									
0.9 - 1									

Project Name: **Soil Changes under Agriculture**
Project Code: **Paired** **Site ID:** **M6** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (SA)**

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)