Project Name: **Soil Changes under Agriculture**
Project Code: **Paired** **Site ID:** **M9** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (SA)**

Site Information

Desc. By: N.J. McKenzie
Date Desc.: 12/04/90
Map Ref.: Sheet No. : 6629 1:100000
Northing/Long.: 6176700 AMG zone: 54
Easting/Lat.: 329300 Datum: AGD66
Locality: Keyneton
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): Hardsetting

Erosion: Partial,

Soil Classification

Australian Soil Classification:
N/A
ASC Confidence:
Confidence level not specified
Mapping Unit: N/A
Principal Profile Form: N/A
Great Soil Group: N/A

Site Disturbance: Cultivation. Rainfed

Vegetation:

Surface Coarse Fragments: 20-50%, coarse gravelly, 20-60mm, subangular, Quartz

Profile Morphology

A11	0 - 0.05 m	Brown (7.5YR4/2-Moist); Pinkish grey (7.5YR6/3-Dry); ; Loam; Massive grade of structure; Earthy fabric; Dry; Very firm consistence; 20-50%, medium gravelly, 6-20mm, subrounded, dispersed, Quartz, coarse fragments; 20-50%, medium gravelly, 6-20mm, subangular tabular, dispersed, Ironstone, coarse fragments; Field pH 6 (Raupach); Few, very fine (0-1mm) roots; Abrupt, Smooth change to -
A2	0.05 - 0.07 m	Brown (7.5YR5/4-Moist); Light brown (7.5YR6/4-Dry); ; Loam; Massive grade of structure; Earthy fabric; Dry; Very firm consistence; 20-50%, coarse gravelly, 20-60mm, subrounded, dispersed, Quartz, coarse fragments; 20-50%, coarse gravelly, 20-60mm, subangular tabular, dispersed, Ironstone, coarse fragments; Field pH 6.5 (Raupach); Few, very fine (0-1mm) roots; Sharp, Wavy change to -
B1	0.07 - 0.1 m	Red (2.5YR4/6-Moist); ; Medium heavy clay; Moderate grade of structure, 10-20 mm, Polyhedral; Rough-ped fabric; Dry; Strong consistence; 10-20%, coarse gravelly, 20-60mm, subrounded, dispersed, Quartz, coarse fragments; 10-20%, coarse gravelly, 20-60mm, subangular tabular, dispersed, Ironstone, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, distinct; Field pH 7 (Raupach); Few, medium (2-5mm) roots;
B1	0.1 - 0.18 m	Red (2.5YR4/6-Moist); ; Medium heavy clay; Moderate grade of structure, 10-20 mm, Polyhedral; Rough-ped fabric; Dry; Strong consistence; 10-20%, coarse gravelly, 20-60mm, subrounded, dispersed, Quartz, coarse fragments; 10-20%, coarse gravelly, 20-60mm, subangular tabular, dispersed, Ironstone, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, distinct; Field pH 7 (Raupach); Few, medium (2-5mm) roots; Clear, Smooth change to -
B21	0.18 - 0.2 m	Yellowish red (5YR5/6-Moist); ; Medium heavy clay; Moderate grade of structure, 20-50 mm, Angular blocky; Rough-ped fabric; Dry; Very strong consistence; 2-10%, medium gravelly, 6-20mm, subrounded, dispersed, Quartz, coarse fragments; 2-10%, medium gravelly, 6-20mm, subangular tabular, dispersed, Ironstone, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, distinct; Field pH 7 (Raupach); Few, coarse (>5mm) roots;
B21	0.2 - 0.3 m	Yellowish red (5YR5/6-Moist); ; Medium heavy clay; Moderate grade of structure, 20-50 mm, Angular blocky; Rough-ped fabric; Dry; Very strong consistence; 2-10%, medium gravelly, 6-20mm, subrounded, dispersed, Quartz, coarse fragments; 2-10%, medium gravelly, 6-20mm, subangular tabular, dispersed, Ironstone, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, distinct; Field pH 7 (Raupach); Few, coarse (>5mm) roots;

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B21	0.3 - 0.4 m	Yellowish red (5YR5/6-Moist); ; Medium heavy clay; Moderate grade of structure, 20-50 mm, Angular blocky; Rough-ped fabric; Dry; Very strong consistence; 2-10%, medium gravelly, 6-20mm, subrounded, dispersed, Quartz, coarse fragments; 2-10%, medium gravelly, 6-20mm, subangular tabular, dispersed, Ironstone, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, distinct; Field pH 7 (Raupach); Few, coarse (>5mm) roots; Gradual, Smooth change to -
B22	0.4 - 0.5 m	Reddish brown (2.5YR4/4-Moist); Mottles, 5YR66, 20-50% , 15-30mm, Prominent; Medium heavy clay; Moderate grade of structure, 50-100 mm, Angular blocky; Smooth-ped fabric; Dry; Very strong consistence; 0-2%, medium gravelly, 6-20mm, subrounded, dispersed, Quartz, coarse fragments; 0-2%, medium gravelly, 6-20mm, subangular tabular, dispersed, Ironstone, coarse fragments; Many cutans, >50% of ped faces or walls coated, prominent; Very few (0 - 2 %), Saline (visible salt), Fine (0 - 2 mm), Crystals; Field pH 7.5 (Raupach); Common, coarse (>5mm) roots;
B23	0.5 - 0.7 m	Reddish brown (2.5YR4/4-Moist); ; Medium heavy clay; Moderate grade of structure, Polyhedral; Smooth-ped fabric; Dry; Field pH 8 (Raupach);
C	0.7 - 1.3 m	; Heavy clay; Smooth-ped fabric; Dry; Very few (0 - 2 %), Calcareous, Medium (2 -6 mm), Nodules; Field pH 8.5 (Raupach);

Morphological Notes

Observation Notes

Cultivated site, badly eroded and concentration of fe stone and quartz at the surface. - paired with M10

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	5.2C 5.8A	0.1A	5.6D	2.9	0.41	0.23		9.3L	9.1D	2.47
0.05 - 0.07	5C 5.9A	0.06A	2.9D	2.1	0.2	0.3		6.6L	5.4D	4.55
0.07 - 0.18	4.9C 5.8A	0.16A	2.9D	9	0.33	2.3		15L	14.6D	15.33
0.18 - 0.3	6.1C 6.8A	0.42A	2.8D	9.8	0.4	4		16.8L	17D	23.81
0.3 - 0.4	6.9C 7.5A	0.7A	2.6E	9.6	0.28	3.9		18.8B	16.4D	20.74
0.4 - 0.5	7.3C 7.9A	0.76A	2.1E	8.1	0.22	3.5		13B	13.8D	26.92
0.5 - 0.7	7.6C 8.1A	1.14A	2.6E	10.7	0.29	5		19.4B	18.6D	25.77
0.7 - 1.3	8.3C 8.8A	0.98A	0.97E	4.1	0.14	2.4		7.4B	7.6D	32.43

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	3A					1.18		14A	55	9	18
0.05 - 0.07	<0.1B	1.1A							24A	50	10	16
0.07 - 0.18	<0.1B	0.4A					1.61		4A	31	9	57
0.18 - 0.3	<0.1B	0.3A					1.56		2A	34	10	55
0.3 - 0.4	<0.1B	0.3A					1.57		2A	36	10	53
0.4 - 0.5	<0.1B	0.1A							2A	43	13	42
0.5 - 0.7	<0.1B	0.1A							0A	36	14	51
0.7 - 1.3	<0.1B	<0.1A							1A	62	16	22

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	0.01A		0.11G					0.08F	
0.05 - 0.07									
0.07 - 0.18	0.04A		0.31G					0.26F	
0.18 - 0.3	0.05A		0.34G					0.27F	
0.3 - 0.4	0.06A		0.34G					0.26F	
0.4 - 0.5									
0.5 - 0.7									
0.7 - 1.3									

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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)