Project Name: Soil Changes under Agriculture

Project Code: Paired Site ID: M1 Observation ID: 1

Agency Name: CSIRO Division of Soils (SA)

Site Information

Locality: Desc. By: N.J. McKenzie S.E. Rhvnie Date Desc.: Elevation: 03/04/89 No Data Sheet No.: 6629 1:100000 Map Ref.: Rainfall: No Data Northing/Long.: 6216300 AMG zone: 54 Runoff: No Data Easting/Lat.: 289100 Datum: AGD66 No Data Drainage:

<u>Geology</u>

ExposureType: Soil pit Conf. Sub. is Parent. Mat.: No Data

Geol. Ref.: No Data Substrate Material: No Data

Land Form

Rel/Slope Class:No DataPattern Type:No DataMorph. Type:No DataRelief:No DataElem. Type:No DataSlope Category:No DataSlope:%Aspect:No Data

Surface Soil Condition (dry):

Erosion:

Soil Classification

Australian Soil Classification:Mapping Unit:N/AN/APrincipal Profile Form:Dr2.13

ASC Confidence: Great Soil Group: Red-brown earth

Confidence level not specified

Site Disturbance: Cultivation. Rainfed

Vegetation:

B21

Surface Coarse Fragments:

Profile Morphology

A11 0 - 0.1 m Dark brown (7.5YR3/4-Moist); Brown (7.5YR5/4-Dry); ; Silty loam; Weak grade of structure, 20-50 mm, Polyhedral; Earthy fabric; Dry; Very firm consistence; Field pH 7 (Raupach); Clear, Smooth

change to -

B1 0.1 - 0.15 m Dark reddish brown (5YR3/3-Moist); ; Light clay; Strong grade of structure, 5-10 mm, Angular blocky; Rough-ped fabric; Moderately moist; Very firm consistence; Common cutans, 10-50% of

ped faces or walls coated, distinct; Field pH 6.5 (Raupach); Clear, Smooth change to -

0.15 - 0.2 m Reddish brown (2.5YR4/4-Moist); ; Heavy clay; Strong grade of structure, 20-50 mm, Prismatic;

Strong grade of structure, 20-50 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack;

Dry; Very strong consistence; Common cutans, 10-50% of ped faces or walls coated,

prominent; Field pH 7.5 (Raupach);

B21 0.2 - 0.3 m Reddish brown (2.5YR4/4-Moist); ; Heavy clay; Strong grade of structure, 20-50 mm, Prismatic;

Strong grade of structure, 20-50 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack;

Dry; Very strong consistence; Common cutans, 10-50% of ped faces or walls coated,

prominent; Field pH 7.5 (Raupach);

B21 0.3 - 0.4 m Reddish brown (2.5YR4/4-Moist); ; Heavy clay; Strong grade of structure, 20-50 mm, Prismatic;

Strong grade of structure, 20-50 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Dry; Very strong consistence; 2-10%, medium gravelly, 6-20mm, angular platy, undisturbed, Shale, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, prominent;

Field pH 7.5 (Raupach);

B21 0.4 - 0.42 m Reddish brown (2.5YR4/4-Moist); ; Heavy clay; Strong grade of structure, 20-50 mm, Prismatic;

Strong grade of structure, 20-50 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Dry; Very strong consistence; 10-20%, medium gravelly, 6-20mm, angular platy, undisturbed, Shale, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, prominent;

Field pH 7.5 (Raupach); Clear, Smooth change to -

B22k 0.42 - 0.5 m Reddish brown (2.5YR4/4-Moist); Mottles, 2.5YR56, 20-50%, 30-mm, Distinct; Medium heavy clay; Moderate grade of structure, 20-50 mm, Angular blocky; Rough-ped fabric; Dry; Strong

clay; Moderate grade of structure, 20-50 mm, Angular blocky; Rough-ped fabric; Dry; Strong consistence; 10-20%, coarse gravelly, 20-60mm, angular platy, undisturbed, Shale, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, distinct; Many (20 - 50%),

Calcareous, Very coarse (20 - 60 mm), Soft segregations; Field pH 8.5 (Raupach);

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B22k 0.5 - 0.7 m

Reddish brown (2.5YR4/4-Moist); Mottles, 2.5YR56, 20-50%, 30-mm, Distinct; Medium heavy clay; Moderate grade of structure, 10-20 mm, Angular blocky; Rough-ped fabric; Strong consistence; 20-50%, coarse gravelly, 20-60mm, angular platy, undisturbed, Shale, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, distinct; Many (20 - 50%), Calcareous, Very coarse (20 - 60 mm), Soft segregations; Field pH 8.5 (Raupach); Gradual,

Smooth change to -

ВС 0.7 - 0.84 m Red (2.5YR5/6-Moist); ; Medium heavy clay; Moderate grade of structure, 10-20 mm, Angular

blocky; 50-90%, coarse gravelly, 20-60mm, angular platy, undisturbed, Shale, coarse fragments; Many (20 - 50 %), Calcareous, Very coarse (20 - 60 mm), Soft segregations; Field pH 9

(Raupach); Clear, Smooth change to -

0.84 - m R Rock

Morphological Notes

Observation Notes

Disturbed Red-Brown Earth - paired with M2

Site Notes

Project Name: Project Code: Agency Name: Soil Changes under Agriculture Paired Site ID: M1 CSIRO Division of Soils (SA)

Observation ID: 1

Laboratory Test Results:

| Laboratory | I CSL IVE | suits. | | | | | | | | | | | |
|---------------------------|--|--------------|-------------|------------|--------------|---------------|-------------------|----------|--------------|----------|------------------|----------|--|
| Depth | pН | 1:5 EC | | hangeable | Cations K | | Exchangeable | CEC | | ECEC | ı | ESP | |
| m | | dS/m | Ca | Mg | ĸ | Na Cmol (+ | Acidity -)/kg | | | | | % | |
| 0 - 0.1 | 5.5C 5.7A | 0.46A | 7.5D | 1.6 | 2.8 | 0.14 | | 11.41 | - | 12D | 1 | 1.23 | |
| 0.1 - 0.15 | 5.2C 5.5A | 0.21A | 9.8D | 2.1 | 1.2 | 0.1 | | 13.5l | - | 13.2D | (|).74 | |
| 0.2 - 0.3 | 5.8C 6.2A | 0.11A | 23.7D | 5.7 | 1.4 | 0.34 | | 33.81 | - | 31.2D | 1 | 1.01 | |
| 0.3 - 0.4 | 6.8C 7.3A | 0.11A | 27D | 5.3 | 1.4 | 0.36 | | 34.31 | - | 34D | 1 | 1.05 | |
| 0.45 - 0.5 | 7.4C 7.9A | 0.17A | 21.2E | 4.7 | 0.88 | 0.23 | 30.8 | | 3 | 27D | (| 0.75 | |
| 0.55 - 0.65 | 8C 8.6A | 0.16A | 21.2E | 4.6 | 0.69 | 0.18 | 25. | | 3 | 26.6D | 0.70 | | |
| Depth | | Organic C | Avail. P | Total P | Total N | Tota K | l Bulk Density | Pa GV | rticle CS | FS | Analysis Silt | | |
| m | % | % | mg/kg | % | % | % | Mg/m3 | | | % | | | |
| 0 - 0.1 | <0.1B | 1.9A | | | | | 1.45 | | ЗА | 53 | 22 | 19 | |
| 0.1 - 0.15 0.2 - 0.3 | <0.1B <0.1B | 1.1A 0.9A | | | | | 1.49 1.27 | | 3A 0A | 42 20 | 20 14 | 33 65 | |
| 0.3 - 0.4 | <0.1B | 0.8A | | | | | 1.27 | | 1A | 16 | 13 | 68 | |
| 0.45 - 0.5 | 2.2B | 0.5A | | | | | 1.31 | | 1A | 18 | 24 | 56 | |
| 0.55 - 0.65 | 4.5B | 0.2A | | | | | | | 4A | 20 | 25 | 48 | |
| Depth | Depth COLE Gravimetric/Volumetric Water Contents K sat K uns | | | | | | | K unsa | t | | | | |
| | | Sat. | 0.05 Bar | | 0.5 Bar | 1 Bar | 5 Bar 1 | 5 Bar | | | | | |
| m | | | | g/ | /g - m3/m | 3 | | | mm | /h | mm/h | | |
| 0 - 0.1 | 0.02A | | 0.32G | | | | | .09F | | | | | |
| 0.1 - 0.15 | 0.03A | | 0.33G | | | | |).12F | | | | | |
| 0.2 - 0.3 | 0.1A | | 0.43G | | | | |).24F | | | | | |
| 0.3 - 0.4 | 0.11A | | 0.46G | | | | |).25F | | | | | |
| 0.45 - 0.5 0.55 - 0.65 | 0.09A | L . | 0.44G | | | | 0 |).21F | | | | | |

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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 |
|---------|--------------------|---|
| | 1 1 1 1/4 | |

soluble salts

15B2_CEC CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts

Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts

Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts

Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts

Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts

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
P10_CF_CS
Clay (%) - Coventry and Fett pipette method
Coarse sand (%) - Coventry and Fett pipette method
P10_CF_S
P10_CF_Z
Silt (%) - Coventry and Fett pipette method
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 0.05 BAR Moisture m3/m3 - Volumetric of soil clods (Soil Survey Staff,1967)

P5_COLE Coefficient of Linear Extensibility (Grossman et al. 1968)