TMP Templers Land System

Undulating rises west of the Main North Road between Roseworthy and Hamley Bridge

Area: 70.6 km^2

Annual rainfall: 400 – 475 mm average

Geology: The area is underlain by fine grained rocks of the Stradbrooke Formation. Although these rocks have a topographic influence, they have little bearing on soils because they are covered by a veneer of Tertiary sediments and more recent calcareous aeolian deposits. The Tertiary sediments are generally clayey, but there are sandy areas as well. There are minor deposits of local alluvium in valleys. The land system appears to be a westward extension of the Freeling Land System, which has undergone a greater degree of dissection.

Topography: The Templers Land System is essentially a long gentle slope with a westerly aspect which has been dissected by water courses flowing from east to west. The average width of the slope is five km with a gradient of 2-3%. Water courses cutting into the slope have formed shallow valleys with side slopes of up to 6%. Underlying basement rock is near the surface on these dissection slopes and forms the parent material for about 10% of the soils on the slopes.

Elevation: 180 m in the north east to 100 m in the south west

Relief: Typical relief from ridge to water course is 30 m

Soils: Most soils are deep with loamy to clay loamy surfaces. About half are calcareous throughout, some with significant rubble. Most of the rest are loamy texture contrast soils, although some sandy types occur.

Main soils:

A6	Calcareous clay loam
D2a	Hard loam over red clay
C3	Gradational red loam
A4a	Rubbly calcareous loam

Minor soils:

G1	Loamy sand over red clay
A4b	Calcareous sandy loam
B4	Gradational loam over calcrete
M2	Dark gradational clay loam
F2	Sandy loam over dark brown coarsely structured clay
D2b	Hard loam over red clay on alluvium

Main features: The Templers Land System is a fully arable undulating tract of country with soils which are mostly moderately deep, well structured and fertile. The most common soils are calcareous so some nutrition problems may occur. Shallow soils on hard calcrete occupy about a quarter of the Land System - crops and pastures will finish quicker in dry spring conditions on these soils. There are some hard setting surfaces associated with loamy texture contrast soils, but these can be ameliorated with modifications to surface management. Minor sandy soils in the south west have low fertility and are prone to wind erosion. Overall productive potential is high.

Soil Landscape Unit summary: 3 Soil Landscape Units (SLUs) mapped in the Templers Land System

SLU	% of area	Main features #
GDB	5.5	Undulating rises to 20 m high with slopes of 2-5%, formed on sandy Tertiary sediments. Main soils: loamy sand over red clay - **G1** (V) and calcareous sandy loam - **A4b** (E). These soils, although arable, have low fertility and are prone to both wind and water erosion.
IWB	90.5	Undulating rises to 30 m high with slopes of 2-6% formed on Tertiary sediments, with basement rock within a metre of the surface over 10% of the area. Main soils: calcareous clay loam - **A6** (C) and hard loam over red clay - **D2a** (C), with gradational red loam - **C3** (L), and rubbly calcareous loam - **A4a** (L). Gradational loam over calcrete - **B4** (stony rises), and sandy loam over dark brown coarsely structured clay - **F2** and dark gradational clay loam - **M2** (flats) are minor soils. With these exception of the shallow rubbly and calcrete-based classes, these soils are moderately deep and fertile. There may be some hard setting surfaces associated with the D2a, C3 and F2 soils, and minor nutrition problems on the calcareous soils, but overall productive potential is high. Crops and pastures on the shallow soils will finish quicker in dry spring conditions.
JEE	4.0	Drainage depressions formed on clayey alluvial sediments. Main soils: hard loam over red clay on alluvium - **D2b** (E) and gradational red loam - **C3** (E). These soils are deep and fertile, although the D2 soils are prone to poor surface structure which affects infiltration rates, workability and plant emergence. Waterlogging occurs in places.

PROPORTION codes assigned to soils within Soil Landscape Units (SLU):

(D) Dominant in extent (>90% of SLU)
(V) Very extensive in extent (60–90% of SLU)
(E) Extensive in extent (30–60% of SLU)
(C) Common in extent (20–30% of SLU)
(L) Limited in extent (10–20% of SLU)
(M) Minor in extent (<10% of SLU)

Detailed soil profile descriptions:

A4a Rubbly calcareous loam (Lithocalcic / Supracalcic / Petrocalcic Calcarosol)
10 - 25 cm calcareous sandy loam to sandy clay loam grading to a highly calcareous brown clay loam to clay over rubbly or sheet calcrete at depths of 20 to 40 cm, grading to very highly calcareous sandy clay loam continuing below 100 cm.

A4b Calcareous sandy loam (Hypercalcic Calcarosol)
10 - 40 cm calcareous sandy loam grading to a highly calcareous brown sandy clay loam with abundant soft carbonate from about 60 cm, over sandy Tertiary sediments.

A6 Calcareous clay loam (Hypercalcic Calcarosol)
10 - 35 cm calcareous clay loam grading to a highly calcareous brown to orange light clay with abundant soft carbonate from about 35 cm, over Tertiary sediments.

B4 Gradational loam over calcrete (Petrocalcic, Red Dermosol)
10 - 30 cm loam to clay loam grading to a well structured red clay loam to clay, abruptly overlying a calcrete pan at about 40 cm.

C3 Gradational red loam (Hypercalcic, Red Dermosol)
15 - 30 cm clay loam to light clay grading to a well structured red clay with abundant soft carbonate from about 50 cm, over Tertiary sediments or alluvium.

D2a Hard loam over red clay (Hypercalcic, Red Chromosol)
20 - 40 cm hard fine sandy loam to clay loam abruptly overlying a well structured red clay, calcareous from about 55 cm, grading to Tertiary sediments or deeply weathered rock.

D2b Hard loam over red clay on alluvium (Hypercalcic, Red Chromosol)
20 - 40 cm hard sandy loam to clay loam abruptly overlying a well structured red clay, calcareous from about 50 cm, grading to fine textured alluvium.

F2 Sandy loam over dark brown coarsely structured clay (Calcic, Brown Sodosol)
Medium thickness hard setting fine sandy loam over a dark brown coarsely structured heavy clay, calcareous from about 55 cm, grading to Tertiary clay.

G1 Loamy sand over red clay (Hypercalcic, Red Chromosol)
15 - 75 cm loamy sand abruptly overlying a red weakly structured sandy clay loam to sandy clay, calcareous from about 55 cm, grading to sandy Tertiary sediments.

M2 Dark gradational clay loam (Calcic, Black Dermosol)
Medium thickness dark clay loam grading to a black well structured clay, calcareous from about 55 cm, overlying Tertiary clay.

Further information: DEWNR Soil and Land Program