

Know your soils

Understanding Soil Colour

The colour of the soil is usually the first thing people notice.

Colour can be used to indicate several soil properties, as well as some of the chemical processes that are occurring beneath the surface.

Soil colour is determined by four main factors:

- The amount and type of organic matter
- The amount and type of iron oxides
- The type of parent material/rock the soil is formed from
- Water content

There are a wide range of colours found in Australian soils. The topsoil (surface soil) is often darker than lower layers due to organic matter accumulation. Red colours in soil are usually due to iron oxides. Poorly drained soils may contain blue, grey and green colours. Some soils are the same colour from the top to the bottom. Other soils vary in colour as you dig deeper.

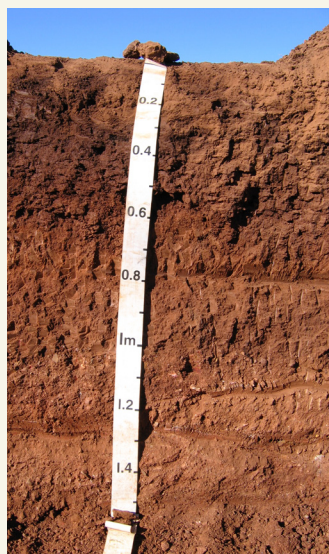
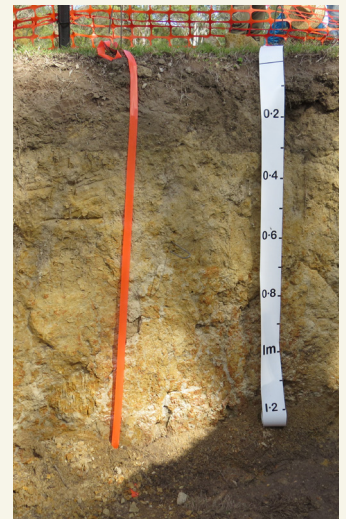
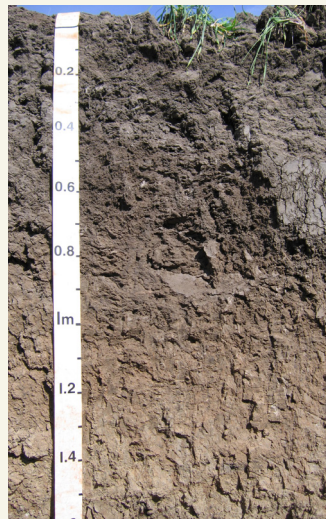


Table 1: A general guide to soil properties, based on soil colour

	BLACK/DARK	BROWN	RED	YELLOW	PALE/WHITE	GREY/BLUE GREY/GREEN
DRAINAGE	Often slow	Well drained	Well drained	Less well drained	Well drained	Poorly drained
WATERLOGGING POTENTIAL	Medium	Low	Low	Low to medium	Low	High
ORGANIC MATTER ACCUMULATION	High	Medium to high	Low to medium	Low to medium	Low	Low
LEACHING OF NUTRIENTS	Low (except for peats)	Medium	Medium	Medium	High	Low



Image 1: Orange mottles can be seen in this soil profile below 45 cm.



Image 2: Red mottles can be seen in this grey soil between 1 and 1.2 metres below the surface.

Mottles

Sometimes you will see spots of colour within the main soil colour. These are called 'mottles'. The colour, size and brightness of mottles are good indicators of soil processes like waterlogging, amount of biological activity and chemical reactions. In general, mottles form due to alternate wetting and drying conditions, so mottling indicates soils that are poorly drained with periodic waterlogging.

Other fact sheets in this series:

- Understanding Soil Texture
- Understanding Soil pH
- Understanding Soil Structure
- Understanding Soil Sodidity
- Understanding Soils from an Erosion Rehabilitation Perspective

For further information on soils, refer to the Queensland Government website:
<https://www.qld.gov.au/environment/land/soil/>