

Soil and irrigation: soil colour

Colour can be a useful indicator of some of the general properties of a soil, as well as some of the chemical processes that are occurring beneath the surface.

Soil colour is usually determined by:

- the amount and state of organic matter
- the amount and state of iron oxide
- soil aeration

Two 'rules of thumb' are:

- the darker the soil is, the more organic matter it contains, and
- a dry soil that leaves your hands 'dirty and dusty' has a high organic matter content

Black and brown soils

These soils are often associated with high levels of organic matter. Some clay minerals can also give a dark colouring.

Red and brown soils

These soil colours indicate good drainage. Iron found within the soil is oxidised more readily due to the higher oxygen content. This causes the soil to develop a 'rusty' colour. The colour can be darker due to organic matter in the soil.



Yellow and yellow/brown soils

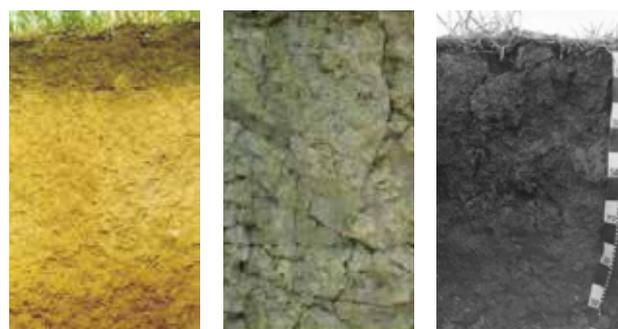
These soils often have poorer drainage than red soils. The iron compounds in these soils are in a hydrated form and therefore do not produce the 'rusty' colour.

Grey and blue grey soils

These colours are associated with soils that have very poor drainage or suffer from waterlogged conditions. Iron and manganese compounds are in their reduced form due to the lack of air.

Light grey soils

These soils are often referred to as bleached or 'washed out'. The iron and manganese particles have been leached out due to high amounts of rainfall or vertical and lateral drainage.



Yellow soil.

Grey clay.

Black soil.

Please turn overleaf to view **Table 1**, that uses the soil colour as a guide to soil properties.

References

Schroeder B, Kingston G (2000) Soil properties in relation to cane growing. In 'Manual of cane growing'. (Eds M Hogarth, P Allsopp) pp. 111-125. (BSES Limited: Brisbane).

Schroeder B, Wood A, Panitz J (2007) Accelerating the adoption of best-practice nutrient management: Burdekin district. BSES Limited, Brisbane.



Information Sheet

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Table 1: Soil colour as a guide to soil properties (Schroeder *et al.*, 2007).

| Soil property | Soil colour | | | | | |
|----------------------------------|-------------|----------|---------------|--------------|----------------|------------|
| | Black | Red | Brown | Yellow | Grey-blue grey | Light grey |
| Internal drainage | Low | High | Moderate-high | Moderate-low | Low | High |
| Waterlogging potential | Moderate | Low | Low | Low-moderate | High | Low |
| Organic matter accumulation | High | Moderate | Moderate-high | Moderate-low | Low | Low |
| Leaching of nutrients | Low | Moderate | Moderate | Moderate | Low | High |
| Nitrogen loss by denitrification | Moderate | Low | Low | Low-moderate | High | Low |