

Sampling, preparation and moisture content

This chapter combines and extends former Chapters 1 and 2 of Rayment and Higginson (1992). Superseded Chapter 1 from that Handbook dealt with sampling and sample preparation, while Chapter 2 dealt with soil moisture contents. Topics sequentially described are soil sampling, sample transport, laboratory preparation and disposal of samples. In addition, there are four methods for soil moisture content, coded as 2A1, 2B1, 2C1, and 2D1. Summary details of these are provided in Table 2.1.

Soil sampling, transport and preparation

Soil sampling is not the main focus of this book but must never be overlooked. All care and attention in the laboratory is devalued if the sample does not truly represent what was intended.

Soils are formed and are continually modified by the actions over time of climate, topography (or relief), vegetation, man, and other biota acting upon parent rocks and on the soil itself. Soils vary in their appearance and in their ability to supply nutrients, water, air and anchorage for plant roots. While individual soils exhibit unique characteristics, they also have characteristics in common. For example, all soils comprise solids (minerals and OM), water and air.

Table 2.1. Summary details of soil moisture methods in this chapter.

Code	Technology	Test method	Notes
2A1	Percentage calculation of air-dry moisture content relative to oven-dry (105°C) weight.	Air-dry moisture content	Mostly used to convert results from an air-dry weight to an oven-dry weight.
2B1	Percentage calculation of as-received moisture content relative to oven-dry (105°C) weight.	As received moisture content	Mostly used to convert results from an as-received weight to an oven-dry weight.
2C1	Wetting-up procedure and calculation to obtain moisture content at 10 mm tension.	Moisture content – 10 mm tension	Used to obtain a repeatable estimate of the quantity of water necessary to prepare saturated soil pastes.
2D1	Percentage calculation of water contained in saturated pastes at the point of visual saturation.	Moisture content – approximate saturation paste	Used to obtain a numeric measure of the amount of water contained in soil-saturated pastes prepared visually.