

Chapter D2. Soil texture tests

PURPOSE OF THIS CHAPTER

To describe how to test your soil texture

CHAPTER CONTENTS

- soil texture testing

ASSOCIATED CHAPTERS

- A3 'Features of soil'
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TESTING YOUR SOIL TEXTURE

Soil texture is an estimate of the amount of clay, silt and sand in a soil. Soil texture is assessed by the behaviour of a small handful of soil when it is moistened and kneaded into a ball and then pressed out between the thumb and forefinger. It depends mainly upon the proportions of gravel, coarse sand, fine sand silt and clay in the soil.

Texture varies from place to place. Many paddocks are not uniform, and it is wise to check the texture in several places within a paddock. Texture variation may help to explain differences in plant growth between parts of a paddock or between different paddocks. Compare a sample of soil from one sampling place with soil from another place to help you to gauge relative differences in texture. Gauging relative differences in texture is easier if two soil samples are assessed at the same time: one in each hand.

Take a sample of soil sufficient to fit comfortably into the palm of your hand. If hard and dry, crush into small crumbs underfoot. Moisten the soil with a little water, and knead it until the ball of soil no longer sticks to your fingers. Add more soil or water to attain this condition. Continue kneading and moistening until there is no apparent change in the feel of the soil ball; this usually takes one to two minutes. The ball of soil is now ready for you to assess the texture: see Table D2–1.

Table D2-1. Guide to determining soil texture

Filed texture group	Coherence	Feel	Other features	Ribbon length mm	Texture grade	% clay
Sands	Nil	Sandy	Single sand grains stick to fingers	Nil	Sand (S)	< 5
	Slight	Sandy	Discolours fingers with organic stain	5	Loamy sand (LS)	5
	Slight	Sticky	Sandy grains stick to fingers and discolours with clay stain	5 to 15	Clayey sand (CS)	5 to 15
Sandy loams	Just coherent	Sandy	Medium sand readily felt	15 to 25	Sandy loam (SL)	10 to 25
	Just coherent	Sandy	Fine sand can be felt	15 to 25	Fine sandy loam	10 to 25
Loams	Coherent	Spongy, greasy	No obvious sandiness or silkiness	25	Loam	25
	Coherent	Smooth	Silky; very smooth when manipulated	25	Silt loam (SiL)	25
Clay loams	Strong	Sandy	Medium sand in a fine matrix	25 to 40	Sandy clay loam (SCL)	20 to 30
	Coherent	Smooth, sandy	Fine sand, can be felt and heard	40 to 50	Fine sandy clay loam (FSCL)	20 to 30
	Strong	Smooth	No obvious sand grains	40 to 50	Clay loam (CL)	30 to 35
	Coherent	Smooth	Silky	40 to 50	Silty clay loam (SiCL)	30 to 40
Light clays	Coherent	Plastic	Fine to medium sand	50 to 75	Sandy clay (SC)	30 to 40
	Coherent	Plastic	Smooth and silky	50 to 75	Silty clay (SIC)	35 to 40
	Coherent	Plastic	Smooth with slight resistance to shearing	50 to 75	Light clay (LC)	35 to 40
Medium & heavy clays	Coherent	Plastic	Smooth; handles like plasticine; moderate resistance to shearing	75+	Medium clay (MC)	45 to 55
	Coherent	Plastic	Smooth; handles like plasticine; firm resistance to shearing	75+	Heavy clay (HC)	> 50

TERMS USED IN TABLE D2-1**Coherence**

The ability of the ball to hold together.

Sandy

Feels gritty, and you can see coarser sand grains. Very fine sand grains (too small to see, and feel a bit like silt) make a grating sound as you rub the soil between your fingers.

Spongy

Typical of loams; also, a high organic matter content creates a spongy feel.

Silky

The smooth, soapy, slippery feel of silt.

Plastic

The ball can be deformed and it holds its new shape strongly. Typical of clays.

Resistance to shearing

How firm the soil feels as you form a ribbon. (Place the ball of soil between your thumb and forefinger and squeeze, sliding your thumb across the soil.) The firmness is a good way to distinguish light, medium and heavy clays. A light clay is easy to shear, a medium clay is stiff, and a heavy clay is very stiff; usually needing two hands to form a ribbon.

Ribbon

Make a ribbon by kneading the ball of soil with your thumb, gently pressing it out over your forefinger. The longer the ribbon you can make, the more clay is in your soil.