

Water for Profit

SOIL TEXTURE



WATERFORPROFIT

Soil consists of a mix of air, water and particles of weathered minerals and organic matter. The relative proportion of the sand, silt and clay present is termed soil texture.

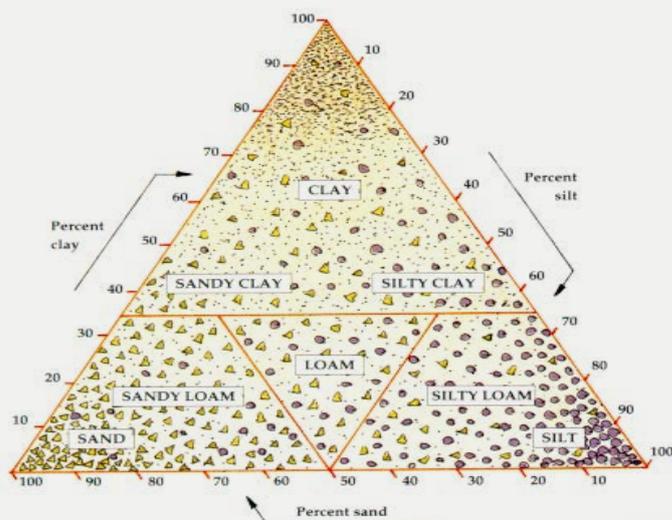
The soil texture has a large effect on both the physical and chemical properties of the soil (see Table 1). Note that the texture of the soil will influence the rate at which water will infiltrate and drain, as well as volume of water that will be stored in the root zone and available for crop use. These properties will affect the rate at which irrigation water should be applied, the frequency of irrigation and the volume of irrigation water that should be applied. Hence, it is important to understand the differences in soil texture across your farm so that you can manage your irrigation practices accordingly.

What is my soil texture?

Texture can be determined in the field simply from the “feel” of the soil and an assessment of the soil’s ability to “ribbon”. The flow chart on the back of this information sheet demonstrates the process of assessing the texture by the feel and behaviour of a soil formed into a ball in the palm of your hand.

You should note that the soil texture may vary greatly both between fields and within individual fields. It will also vary with depth from the soil surface. Substantial variations with depth will affect both the ability of roots and water to move through the soil profile.

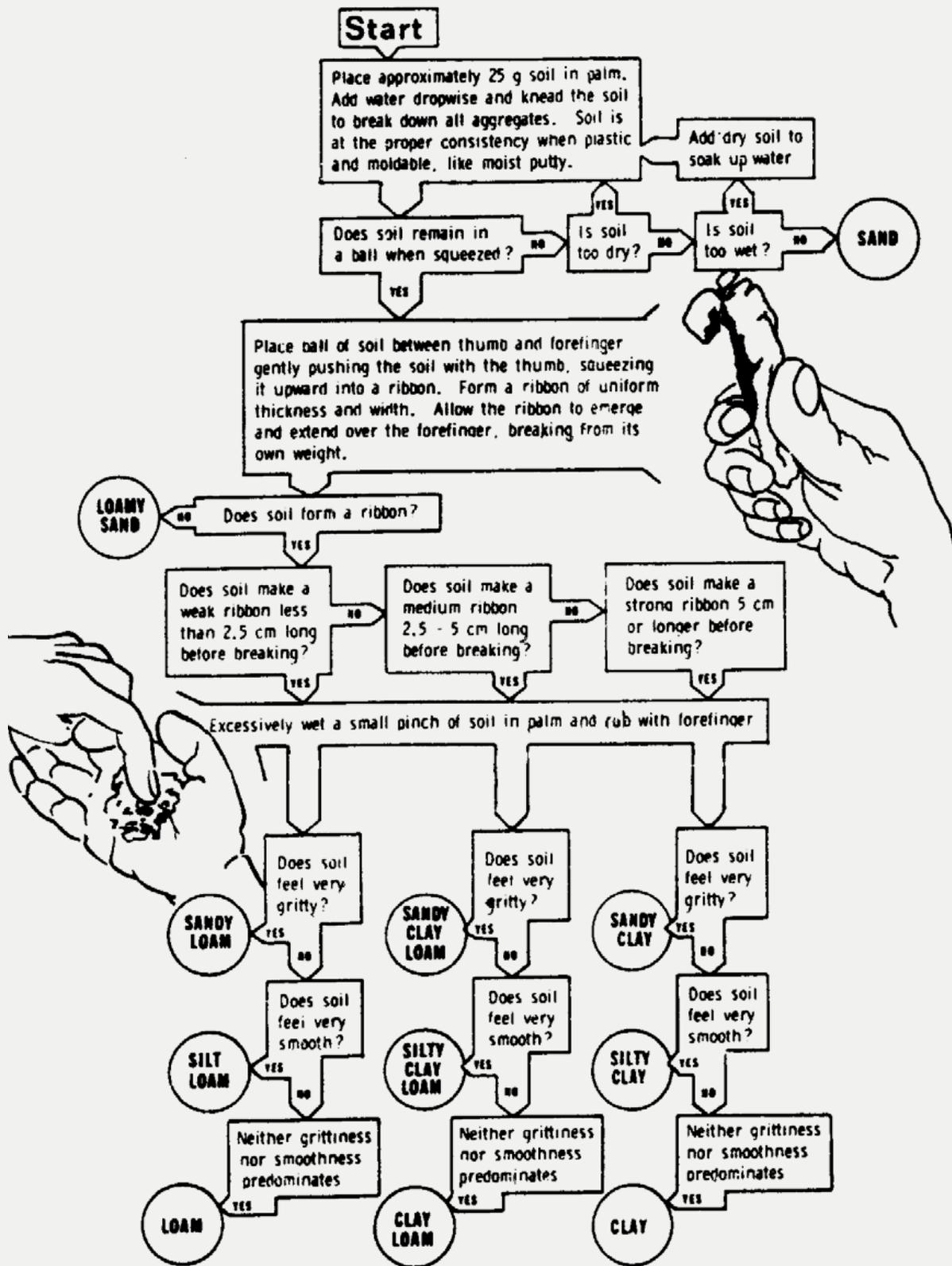
Hence, you should ensure that you measure the soil texture at a range of depths within the crop root zone as well at several locations within your main irrigation area.



For more details contact Growcom on 07 3620 3844.

Table 1 Soil properties affected by texture

| | Sandy Soils | Loamy Soils | Clayey Soils |
|-----------------------------------------------------------------------------|-------------|-------------|-------------------------------------|
| Water Relations | | | |
| • Infiltration – entry of water into the soil. Opposite of runoff potential | Rapid | Medium-slow | Rapid: cracks; very slow: no cracks |
| • Drainage and leaching | Excessive | Good | Fair-poor |
| • Water storage – available for plant use | Very low | Medium | High |
| • Aeration – movement of oxygen into rootzone | Very low | Moderate | Poor |
| Tillage and Erosion | | | |
| • Power required | Low | Medium | High |
| • Ease of seedbed preparation | Easy | Medium | Difficult |
| • Wind erosiveness | High | Low | Moderate |
| • Water erosiveness | Low | High | Low-Medium |
| Fertility | | | |
| • Nutrient adsorption | Low | Medium | High |
| • Fertiliser recommendations (rates/ha) | Low | Medium | High |



Disclaimer: This information is provided as a reference tool only. Seek professional advice for irrigation specifics.

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Queensland Government

