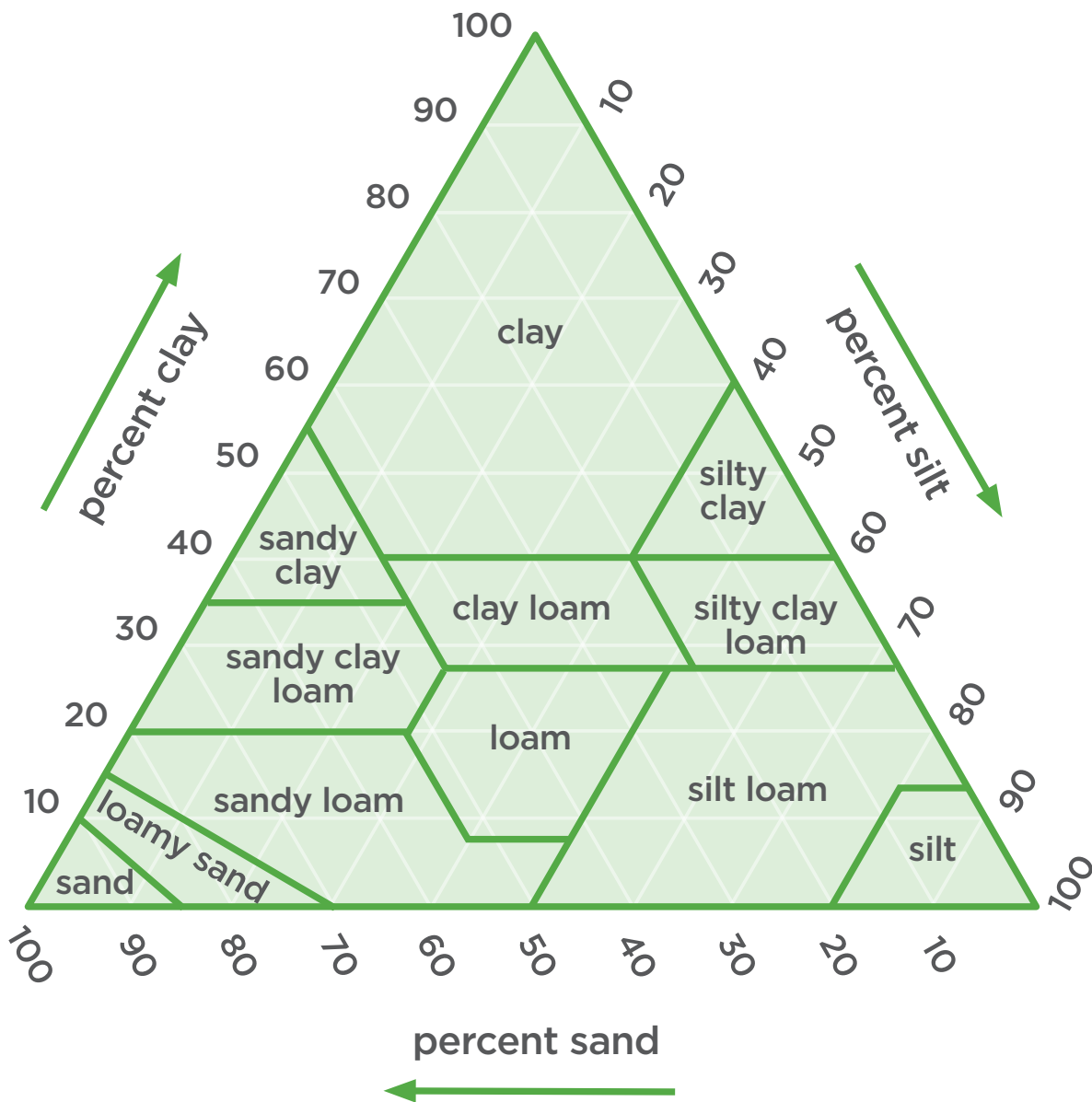




# Improving soil for an Orchard

In an orchard there are 3 main types of soil particles; clay, sand and silt. Each of these have different properties and compositions. The percentage of each particle type in a mixture creates different soil properties. For example, an equal mixture of all three creates a loam soil.

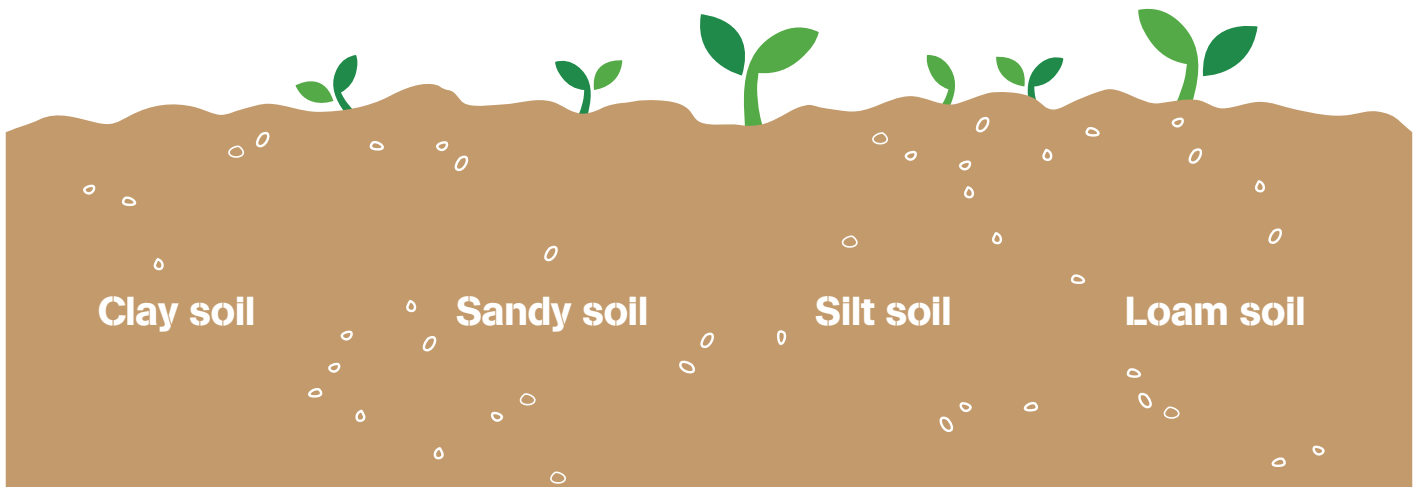
The difference in these soil textures can be shown in the soil triangle\*:



\*USDA Soil Texture Triangle



## Types of soil



### Clay soil

Clay soils have over 25% clay in their composition, they are known as heavy soils. Clay soil can be highly fertile as they hold nutrients well but also tend to hold a lot of water therefore can be very wet and slow to drain. Clay soil is easily compacted when trodden on while wet and hardens in the heat. You can easily tell if you have clay soil as it has a smearing quality and is sticky when wet.

### Silt soil

Silt soil tends to be made up of the intermediate sized soil particles. This allows them to be fertile and well drained but hold more moisture than sandy soil. They are easily compacted and therefore hard to work with. Silt soil is rare, it does not clump easily and has a slippery texture.

### Sandy soil

Sandy soil has a high proportion of sand and very little clay, they are known as light soils. This soil drains quickly after rain and therefore requires more watering. Sandy soils are also low in nutrients as they are washed away by the rain. You can feel the sand grains in the soil when rubbed between your fingers.

### Loam soil

Loam soil comprises a mixture of the three soil texture types: clay, sand and silt. This is the ideal soil as it avoids the extremes of each soil type. The soil is fertile, well drained and easy to work with as it doesn't get compacted easily.



## Working with the different soil types

### Clay soil

In order to improve clay soil, organic matter can be added to break down the clay into separate crumbs. This allows the water and nutrients held in the soil to be more accessible to roots of plants. This addition also improves the soil by making it less likely to compact, therefore it becomes more workable.

### Silt soil

Silt soils tend to be easily compacted and are prone to washing away due to the instability of the soil particles. In order to improve this, organic matter can be added binding the silt particles into more stable crumbs.

### Sandy soil

Sandy soils require the addition of a lot of organic matter in order to improve their fertility, as this improves the soil's ability to hold water and nutrients. Fertilisers may also be required to give plants a boost.

### Loam soil

Loam soils tend to be the perfect mix of the three soils and do not require a lot of work. However, the addition of small amounts of organic matter through mulch rings is still beneficial in maintaining the soil over many years.

Soils can be improved over time; the tree will be in the same spot for decades and therefore the ongoing additions of organic matter, mostly in the form of mulch (material such as decaying bark, leaves or woodchip) will help keep roots healthy. A healthy root system will also help to hold water and nutrients in the soil.

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