

****ASK THE TAFE TEAM****

**With TAFE Queensland South West Horticulture Teacher, Paul Luck
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Question: *What can I do to improve my clay soil?*

Answer: The Ipswich region has a variety of soil types including sand, deep red loamy soil, dark red loam, and clay. The most common soil type is shallow loam over a deeper layer of heavy clay. In many parts of South-East Queensland soils are often low in nutrients, are compacted, and poorly drained due to urban development.

Although there are pockets of fertile soils in Ipswich, many of our houses and gardens started their life as Sclerophyll forests with a heavy clay soil. To transform these areas from bare and compact clay into gardens you will need to spend time preparing the existing soil.

Soil is made up of various different sized particles with microscopic spaces, or pores, between the particles. These spaces hold the oxygen, water and nutrients that plants need to grow. The main characteristic of a heavy clay soil is that it is made up from very small particles, and as a result has very small pores and is tightly compacted.

The problem with clay isn't one of nutrient deficiency, but the structure of the soil. If you think of sand (which is loose, free draining and is nutrient poor), then you have the opposite of clay. Clay soils tend to have a high water holding capacity, drain very slowly and lack required aeration, but hold good nutrients. All these characteristics create poor growing conditions and a difficult environment for plant roots.

The solution is to add various elements to your soil to create an open, more air-filled, freely draining structure to promote better root growth.

- **Organic Compost** is the best solution to clay soils. If possible add lots of compost to your growing area and dig it in. A mechanical rotary hoe is a useful tool for large areas.
- **Gypsum** can be added to some clay soils. Mix it through the soil while incorporating the organic matter mentioned above, then water in well. You can use between 0.5-1kg of gypsum per square metre of garden bed.
- **Import soil to build up your growing area and use mulch.** Over a longer period of time mulch will break down and mix with the clay improving the structure and drainage.

Note that gypsum, sometimes sold as clay breaker, should only be used in some situations. The Emerson Dispersion Test (EDT) indicates whether you should use gypsum or not.

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To perform the EDT drop a piece of dry soil, about 6mm in diameter, into a glass of rainwater. Don't move the glass, just watch what happens to it after an hour and then again after 24 hours. If it slowly disperses into the water, first forming a halo of clay particles around the aggregate, it will respond to the addition of gypsum to the soil. If it does nothing at all in the water, it would be a waste of time adding gypsum to the soil as it won't respond.

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