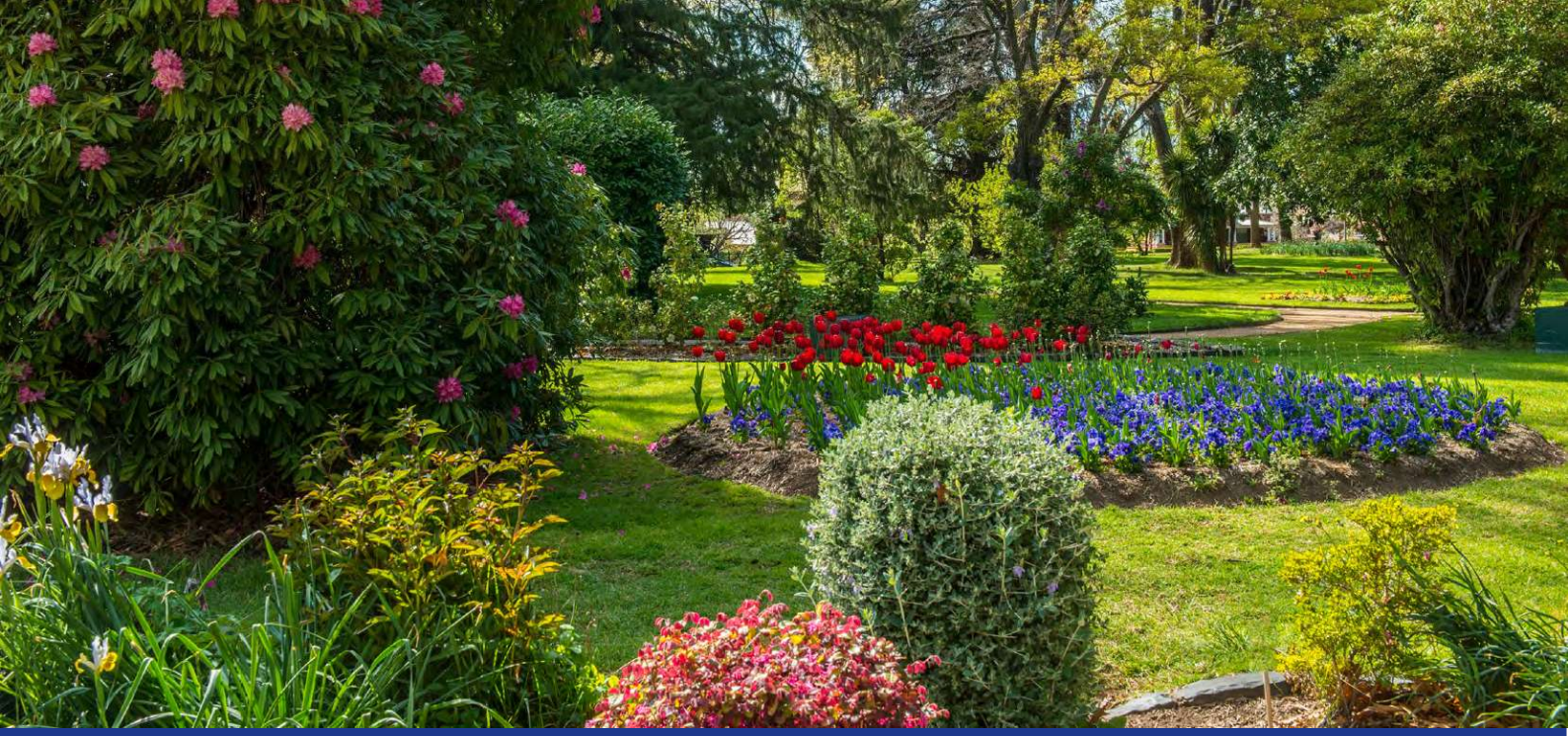


Improving garden soils with Watheroo Bentonite clay

Bentonite clay, together with organic matter will improve the soil structure, water and nutrient retention, soil wettability and soil biological activity. These soil characteristics are beneficial to all plant categories, including drought-resistant natives.

Soils of the Swan coastal plain are poorly structured, sandy soils. Such low levels of clay and organic matter result in low fertility, low water-holding capacity, poor nutrient retention and poor soil wetting. Watheroo Bentonite soil-improver consists of calcium bentonite clay, with no chemical or other additives. Bentonite clay is a very effective soil-improver for ornamental gardens, vegetable gardens, lawns and native plants.

Soil microbes and soil animals (such as worms) are a vital part of stable, healthy soils and are essential to healthy plant growth – leading to nutritious vegetables and abundant blooms. Adequate levels of appropriate clays make nutrients from manures and fertilisers more available to be used by microbes and other soil life – which, in turn leads to healthier and stronger garden plants[1,2].

Untreated Perth coastal plain soils can contain almost no clay at all. The addition of clay to levels of between 1% and 3% of the top 20cm of soil (the root zone) has very beneficial effects on soil quality – including wettability, water retention, nutrient retention – and hence plant growth and yield. Leaching of nutrients, from fertilizers and manures, into the water table, and thus into rivers and wetlands, is an increasing environmental problem[3]. The addition of clay to sandy soils reduces the rate at which nutrients are leached, reducing this hazard and allowing your plants increased access to the nutrients, thereby reducing your expenditure on fertilisers for your garden.

[1] Dixon, J. B. (1991). Roles of clays in soils. Applied Clay Science, 5,489-503.

[2] White, R. E. (2006). Principles and practice of soil science: The soil as natural resource (4th ed.). Melbourne: BlackwellPublishing.

[3] Water Corporation of Western Australia: www.watercorporation.com.au

Made in Western Australia

ALOSCA TECHNOLOGIES

ALOSCA TECHNOLOGIES
WESTERN AUSTRALIA'S PREMIER SUPPLIER OF HIGH GRADE CLAY PRODUCTS

CLAYS ADDED TO SANDY SOILS HAVE DOCUMENTED POSITIVE IMPACTS ON:

1. Improved soil wettability
2. Improved soil water retentionability
3. Increased cation exchange capacity (CEC), reduced nutrient leaching and increased availability of nutrients and trace elements
4. Improved soil structure and aggregate formation
5. Increased survival of good bacteria like rhizobia and general increase in soil microbes, earthworms and other soil animals
6. Increased yields in crop plants

Preparing for new garden beds or lawns presents a great opportunity for ensuring long-term soil health by adding 3kg to 5kg of clay per square metre (in addition to other organic matter).

Using bentonite clay at the right application rate in conjunction with compost, manures and organic matter is a cost-efficient and effective way to upgrade your garden soils without the unnecessary hassle and expense of purchasing commercial top-soil (and the removal of the existing sandy soils).

Gardeners should consider carefully the purchase of other 'soil-improvers' where the clay content may be less than that needed to have a beneficial effect on plant growth. Moreover, industrial clays often contain chemicals added to improve their performance in particular processes, such as drilling for oil. These additives may harm plants and soils. Care should be taken in handling such finely milled industrial clays as they may present a hazard to respiratory health.

ALOSCA TECHNOLOGIES

This natural, unmodified clay is an effective soil conditioner that will improve your soil and is safe for aquatic systems, plants, animals and micro-organisms. It is sourced from our own mines at Watheroo in Western Australia.

Watheroo Bentonite is a vital component of a water-wise garden

Application rates:

New garden beds for vegetables, flowers, lawns, and native plants.

- 3-5kg per square metre (unimproved sandy soils will benefit from higher application rates)
- Add a high qualtiy matured compost as well (5-10kg per square metre)
- Spread clay and compost onto surface of soil and mix into top 15-25cm manually or using a rotary hoe

Established gardens, trees, and lawns.

- 1-2kg per square metre: apply 500g per square metre, 2-4 times over several weeks
- Add a high qualtiy matured compost, 2-5kg per square metre

Establishing new vegetable and flower beds, lawns, pot plants and soil mixes:

- Spread dry bentonite granules across the soil surface
- Apply compost or manure as desired
- Work the bentonite and compost through the root zone to a depth of 25cm

Establishing a native plant garden:

- Spread dry bentonite granules across the soil surface
- Work the bentonite and compost through the soil to a depth of 25cm
- Apply mulch

Existing gardens and flower beds:

- Apply dry bentonite to soil surface and work in well – either manually, or by watering in if there is a risk of damage to existing plant roots
- Add manures, composts and fertilisers as required

Existing pot plants, shrubs and trees:

- To avoid disturbing roots, add 4 standard cups of clay to a 10 litre watering can (stir well) and apply to the soil
- Regular applications, rather than heavy single treatments, allow the clay to gradually incorporate into the soil

Existing lawns:

- Spread dry bentonite over the lawn and water in thoroughly
- Regular light applications, rather than heavy single treatments, allow the clay to incorporate into the soil

Precautions

- Bentonite clay granules are very stable, however keep granules dry to ease handling and distribution
- Use dust-mask when spreading to avoid inhalation of fine dusts
- Spilt clay can be slippery and a hazard when wet

ALOSCA TECHNOLOGIES

MADE IN WESTERN AUSTRALIA

Calcium bentonite clay as a soil amendment for intensive horticulture

Watheroo Minerals is Western Australia's premier supplier of high grade calcium bentonite clay to the garden and intensive horticulture sector. Situated 250kms north of Perth we currently supply many of WA's industry leading horticultural enterprises.

Water allocation rates, and costs of water used in horticulture and turfgrass are significanct issues for managers, and in a dry climate these will become more important. S andplain soils of Western Australia have very low clay content, with consequent problems of low soil water retention, rapid drainage and leaching, and poor soil structure properties.

This increases water usage as water evaporates or gravity drains out the root zone. Calcium bentonite clay is an effective soil amendment for these sandy soils. Trials at University of Western Australia show water content of clay-amended soils were double that of unamended soils in low irrigation rate treatments.

Clay as a soil amendment improves sandy soils by increasing soil moisture retention rates. Clay granules disperse with wetting and are available to react with other soil components; the clay component absorbs water and by reacting with sand grains and organic matter improves soil structure and reduces leaching.

Clay is a stable, natural product so has long-term benefits in soil. Our clays are tested regularly and certified free of Pythium and Phytophthora.

The clay is mined in WA and available all year at short notice. The clay is available in bulk and is low in moisture making it easy to handle. C alcium bentonite clay should be incorporated into the top 100mm to 300mm to benefit the root zone.

CSBP SOIL ANALYSIS

pH Level (H2O)	
8.60 pH	
Exc. Calcium	
11.15 meq/100g	
Exc. Magnesium	
12.40 meq/100g	
Exc. Potassium	
0.80 meq/100g	
ECEC	
64.54 meq/100g	
Neutralising Value	
60 NV	
Phosphate Retention Index (PRI)	
229	

Made in Western Australia

ALOSCA TECHNOLOGIES

ALOSCA TECHNOLOGIES
WESTERN AUSTRALIA'S PREMIER SUPPLIER OF HIGH GRADE CLAY PRODUCTS

PROPERTIES

- Screened granular product, <2mm; easy to handle and apply
- Granules hydrate and disperse in soil
- High Cation Exchange Capacity (CEC)
- Certified free of Pythium and Phytophthora

PROCESS

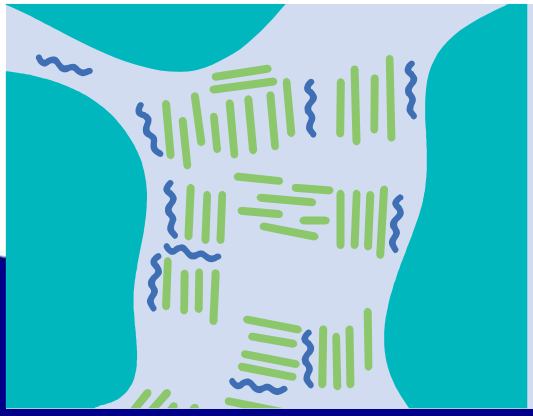
- Disperses in soil, binds with other soil components
- Improves soil moisture retention
- Reduces nutrient leaching

BENEFITS

- Improved soil moisture retention
- Reduced soil water repellency
- Improved soil structure
- Reduced leaching of water and nutrients
- Increased soil CEC

Productive soils often have a clay content of 12-20%. Research in Australia shows that soils with less than 5% clay will have problems with soil water retention and development of water repellency.

Soil amendments to increase the clay content to over 5%have been shown to improve soil moisture, reduce water repellency, increase microbial activity and increase yields.



HOW CLAY HELPS FORM CLAY AGGREGATES

Clay and organic matter composites bind sand and silt particles to form aggregates. This happens at microscopic scale to form micro-aggregates <250um and at a larger scale, macro-aggregates >250um.

- Quartz
- Organic matter
- Assemblages of clay particles

ALOSCA TECHNOLOGIES

Contact StrataGreen:
info@stratagreen.com.au
stratagreen.com.au