



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 significant issues for managers, and in a dry climate these will become more important. Sandplain 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. Calcium 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



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

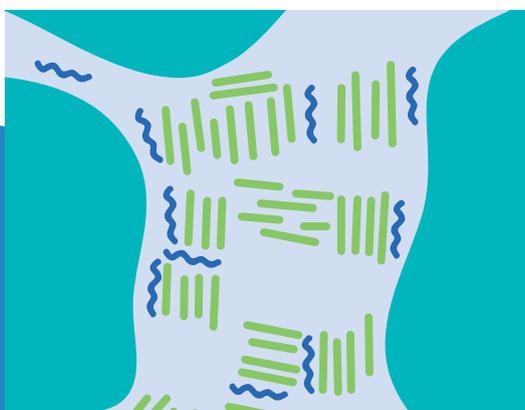


BENEFITS

- 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 SOIL 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