

Gypsum Use

Gypsum (calcium sulfate) is an input used in coffee as a calcium and sulfur soil amendment, acidity regulation (sodic soils only), aluminum toxicity treatment, and soil structure improvement to facilitate water infiltration. Once dissolved, gypsum is mobile in the soil, tending to aggregate soil particles together and hence increasing downward mobility of nutrients, thus stimulating the roots to continue the search for nutrients and to develop a deeper root system. Gypsum should be applied in the first year of planting, when the plants' roots are establishing; it also benefits the plants when they face drought periods since plants with deeper roots can access humidity in deeper soil layers.

Threats



Prolonged drought



Temperature increase

Impacts



Productivity reduction



Production loss

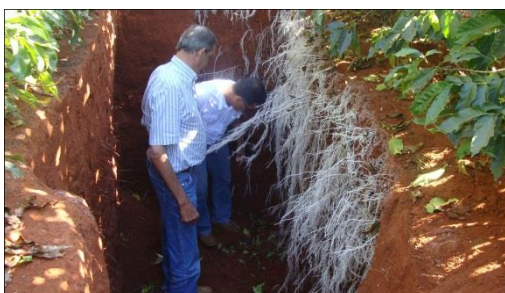


Physiologic changes

Steps



Application of high amounts of gypsum



Effect of gypsum on root system development



Follow up with soil analysis

Step by Step

- 1 Gypsum must be applied in one to three year old coffee plantations when the root system is still in development.
- 1 Gypsum is applied in high amounts. Although there are no defined data towards the dosage, amounts between 8 to 12 tons (TM) per hectare can be used.
- 1 Apply gypsum around the coffee plants, at 10 cm distance from the main trunk.
- 1 Gypsum can be applied at any time, but it is recommended to do so during the rainy season (January to March), so it can start to work quickly.
- 1 It is recommended to perform a soil analysis to check the effect on the soil's nutrient balance and to make the necessary corrections to avoid the crop's nutritional imbalances. The extra calcium will unbalance magnesium availability, but overcompensation will reduce the beneficial effect of calcium on root depth.
- 1 It is recommendable to make trenches in some points of the property to see the effect of gypsum on the roots and to verify its benefit.
- 1 In years of good rainfall, it might seem that there are no differences between fields with and without gypsum; the main effect will be expressed in years of drought.

From preliminary observations, the c&c team have observed that plots submitted to large amounts of gypsum develop deeper roots in comparison to plots without it. Plants with gypsum display with greater vigor in