



**PRODUCT INFO
& DATASHEET**

SICO CALCIUM FORMULATIONS

IMPORTANCE OF CALCIUM

ROLE OF CALCIUM IN PLANT GROWTH:

Calcium is an essential nutrient in plant growth. Due to its abundance in plants, it is considered a macronutrient. Approximately 0.2 – 1.0 % of plant biomass is composed of calcium. Calcium is available to plants in the form of Ca^{2+} . High concentrations of calcium in the soil are not detrimental to the plant because the plant limits calcium uptake. Calcium's role in plants are the following:

- 1/ Building the structure and permeability of cell membranes.
- 2/ Plant growth (cell division and elongation).
- 3/ Enhancing the uptake of K^+ and NO_3^- in plant roots.

SOIL PROCESSES AFFECTING NUTRIENT AVAILABILITY:

Parent Material

Soils formed from parent materials composed largely of calcium are more likely to have available calcium.

CEC.

Fine-textured soils (clay-sized particles) have more available calcium than those of coarse-texture (sand-sized particles). Fine-textured soils have a higher CEC due to the greater portion of clay in these soils. A high CEC absorbs more Ca^{2+} to soil surfaces, which ultimately provides more Ca^{2+} to the soil solution. The Ca^{2+} in soil solution is plant available calcium. Thus a higher CEC creates more plant available calcium.

Leaching

Soils exposed to high amounts of rainfall have less calcium. Calcium is moved out of the soil through water (a.k.a. leaching). One result of the leaching is that exchangeable calcium goes into soil solution to replace the leached calcium. However, not as much calcium will remain in soil solution afterwards. The final result is less plant available calcium. A higher CEC will reduce the net losses of calcium in soil solution.

Soil pH

Acid soils tend to have low available calcium. When the Al^{3+} and H^+ concentrations are increased (the situation in acid soils), more exchangeable calcium is replaced by Al^{3+} and H^+ . Less exchangeable calcium results in less plant available calcium.