

Silica

Two elements dominate planet Earth:

1. The rock forming element: Silicon (Si). Silica (SiO₂) (Quartz) is the common term for the compound silicon dioxide.
2. The Organic matter forming element: Carbon (C).

Everything we know today about Silicon and plants, is based on basic observations and hearsay. To fully understand the importance of Silicon we must spend more money to carry out more good old fashion scientific work.

We know that Silica is a major component of plant tissue, but although it is vital to plant health, it has never been considered as one of the “essential” nutrients; it should be considered as a great additive. Silicon (Si), can only be taken up by plants in the form of soluble mono-silicic acid.

Some of the benefits silica provides to plant health are:

Stronger cell walls. Cells are the building blocks of every plant's framework. Strong cell walls not only help plants to build strong branches, stems, etc., but also help with the uptake and transport of nutrients and facilitate faster and better growth.

Resistance to environmental stress. Plants do not have immune systems. Silica helps to perform some of the functions that protect plants.

1. Helps to withstand extreme hot or cold temperatures, such as: hot day peaks and very low night temperatures.
2. Form a protective coating that decreases water loss through transpiration, making plants less likely to suffer in drought conditions.

Resistance to Pathogens. Plants accumulate silica around infected areas. That, helps to fend off fungal infections such as: Rust, Pythium, Powdery Mildew, etc. Plants also use silica to build barriers that prevent diseases and plant pathogens to enter the plant.

Resistance to Pests. Because Silica accumulates in the epidermal cell walls of the leaves, etc, it is harder for biting and sucking insects to attack the plant.

Healthy Plant Growth. Silica enables plants to efficiently use carbon dioxide (CO₂). Consequently, the foliage is healthier and leaf wilt is reduced. When using soluble silica, new plant growth has a higher concentrations of chlorophyll in their leaf tissue.

Foliar feeding is the best way to ensure that silica is directly absorbed into the leaves.

Silica is alkaline by nature and will raise the pH level of the nutrient solution.

Deficiency of silicon may increase the potential for manganese, copper or iron toxicity.

It is important to do your own research, talk to other users, read reports, etc, for example, an Article Published by the American Orchid Society. OCTOBER 2003 issue of Orchids -- The Bulletin of the American Orchid Society. By Susan Jones.