

# Correct Soils with Soluble Calcium

## Achieving Mineral Balance

Balancing the minerals in the soil solution is critical to building productive soil and biological farming. Biological farmers often discuss minerals in the soil in terms of deficiencies and the law minimums; however, mineral excesses can also be problematic to the biological farmer. Mineral excesses, particularly in the soil solution, can cause soil dispersion, erosion, weed pressure, salinity, and poor crop performance for conventional, biological, and organic farmers alike.

**Soluble calcium is the first step towards a healthy soil environment and should be the first tool any farmer uses in their operation.**

## Soluble Calcium

As a soil corrective, soluble calcium is far superior to the traditional calcium soil amendments in that it can correct mineral excesses. Soluble sources of calcium need first be applied to structure the soil and initiate biological health.

Soluble calcium is a powerhouse of a soil mineral, primarily due to how it acts when hydrated.

- When sodium, potassium, and magnesium are all hydrated, the mineral swells, which is problematic if our soluble minerals dominate the soil solution as the soil also swells and erodes.
- Shrink/swell is a common problem for many farmers across the globe and is a result of an imbalance in our hydrated cations.
- Calcium, in particular soluble calcium, differs from the other minerals in that when calcium hydrates, it does not swell.

Whether it's excessive weed pressure, poor drainage, salinity problems, low productivity, or under-performing yields, look to your soluble minerals first. Once you achieve balance, your soils will be predictable, uniform, and productive.

## Regenerating Soil Structure

Soil structure is the fine crumb or tilth of the soil and grows via multiple pathways. Soil structure can be built via biology alone; however, this process is labor-intensive and often time prohibitive. Alternatively, the use of soil amendments in combination with biology can accelerate the regeneration of soil structure.

Soil structure balances two pools in the soil:

- **Soil solids** - are commonly measured with soil chemistry tests and balanced following the base saturation cation ratio theory.
- **Soil solution** - which includes the nutrients in the pore space and those weakly attracted to small soil colloids, is lost in conventional soil testing leaving unresolved questions of solubility and soil structure.

With conventional wisdom, we are only measuring ONE pool in the soil: the soil solids.

