

## Nitrogen Fixation & Inoculant

A microbial inoculant is an agricultural amendment used to introduce beneficial microbes into a system to support plant health. One of the most common, and studied, microbial inoculants are those that introduce nitrogen fixing bacteria into a system.

Nitrogen fixation is essential to life as fixed inorganic nitrogen compounds are required for the biosynthesis of all nitrogen containing organic compounds such as DNA.

Nitrogen fixation is a chemical process by which molecular nitrogen in the air,  $N_2$ , is converted into ammonia,  $NH_3$ , or other more available nitrogenous compounds. Molecular nitrogen,  $N_2$ , is readily available as it makes up about 78% of the air we breathe. However, in this gaseous state it is a relatively nonreactive molecule that is metabolically useless to most organisms. Fortunately, there are microorganisms that can change gaseous nitrogen into more available forms. Some of these nitrogen fixing microorganisms form symbiotic relationships with certain plant groups such as legumes.

We recommend applying inoculant to legume plantings as it increases available nitrogen for the soil and plants.