



The Microbial Advantage

Within every square foot of soil there exists a unique bio-environment that contains millions upon millions of beneficial and non-beneficial microbes, bacteria, fungi, and other soil organisms. In balanced soils, these micro-organisms coexist naturally. Traditional petrochemical-based fertilizers, pesticides, fungicides, and herbicides, broadly used on turf and agricultural lands, have contributed to an imbalance in the natural ecosystem. Expanded use of these chemical-based products have led to chemical resistant strains of diseases and inhibited soil nutrient performance.

Traditional attempts to restore damaged soils used chemicals to try to reverse the chemical damage, which added insult to injury, and made the problem worse. Recently, microbial restoration has been attempted, but these attempts often failed because the microbial products were not strong enough to alter the indigenous bio-system or correct the imbalance caused by the years of chemical usage.

3 Tier's microbial products have important advantages over other microbial products. We offer two distinct microbial packages, one with **13**-strains of microbes, and our XL package that contains **18**-strains of microbes. Both packages are preserved in an all-natural preservative package, allowing the microbes to awake easily when mixed with water. While competitive products often contain between 30 and 40 million microbes per gallon, the 3 Tier microbe packages are concentrated with **39.65 to 54.9 billion colony forming** microbes per gallon – nearly a thousand-fold increase! Our concentrated, specially-selected microbes are strong enough to correct the chemical and microbial imbalances and regenerate soils to a healthy state.

3 Tier's microbial packages benefit from the following proprietary blends of bacillus microbes:

- **B. subtilis (5 Strains)**: Known for their strong disease fighting properties. This combination also is a key contributor to cellulose degradation.
- **B. polymyxa**: Known for its ability to convert calcium and iron into immediately available forms. B. polymyxa is also an aggressive cellulose degrader or thatch remover.
- **B. thuringiensis¹ (XL Versions Contain 6 Strains)**: Lives in soil, and generates an endotoxin lethal to both surface and sub-surface insects. The endotoxin causes destruction to the cells inside the target, leading to the insect's death.
- **B. licheniformis**: An aggressive primary and minor nutrient converter.
- **B. amyloliquefaciens (5 Strains)**: Most potent microbial producer of enzymes and has an exceptional high protein export capacity. Has also shown tremendous biocontrol of the pathogens causing Rhizoctonia solani.

3 Tier's agronomists understand that microbes and nutrients are critical for regenerating chemically-damaged soil to a healthy state. Our complete line of NBN products are designed to work together to restore and maintain a healthy eco-system while minimizing the need for pesticides and fungicides.

Contact 3 Tier Technologies to learn how these and other NBN Products will help find solutions to your immediate challenges and provide long-term balance to the soil and plant performance.

¹ As referenced in www.ebi.ac.uk/2can/genomes/bacteria/Bacillus_thuringiensis.html