SweeterSoils

BactivatePlus

WHAT IS BACTIVATE PLUS LIQUID?

Bactivate PLUS is a liquid Microbial Soil Conditioner composed of 3 specific *Bacillus* species (listed below), humates and nutrients that enhance plant growth and protection. This document highlights the role of beneficial micro-organisms in stimulating plant growth and protection and their use as bio-fertilisers and biological control agents to benefit unproductive and stressed environments.

WHAT IS A MICROBIAL SOIL CONDITIONER?

A Microbial Soil Conditioner is a culture of beneficial micro-organisms (special bacteria and/or fungi) formulated with a suitable carrier material that helps soils improve their nutrient status and encourages proper plant growth and protection. These beneficial micro-organisms can:

1. Increase phosphorus uptake;
2. make atmospheric nitrogen available and readily accessible to roots;
3. promote the growth of roots by releasing plant regulation substances, and
4. protect the roots from pathogenic micro-organisms and create a healthy environment for outstanding plant growth and performance.

A Microbial Soil Conditioner acts as a natural biocataliser by assuring quick colonisation of the rhizosphere (root zone) with beneficial micro-organisms that will re-establish a healthy soil and allow plants to thrive. A healthy rhizosphere dominated by beneficial micro-organisms is the perfect natural environment for plant growth. Farmers can create real economic benefits by applying this biotechnology to their own farm soils. By identifying exactly which organisms and correct application rates, you can maximise beneficial outcomes while limiting adverse effects of normal farming practices over both the short and long term.

SPECIFIC BENEFICIAL BACTERIA

The bacteria in Bactivate Plus invert the nutrients available in the product into useable plant foods. This process is conducted in the area of the plant's developing root system and encourages improvement of the soil structure, thus increasing plant development and yield improvement. Bactivate Plus contains specific, individual antagonistic strains of *Bacillus* bactera, each of which has a specific function in nature. These functions can facilitate the reduction of chemicals and chemical fertilisers and feed the plant naturally, as nature designed it.

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Bactivate Plus Liquid incorporates three specific *Bacillus* bacteria, humates and nutrients. This combination will improve tired, nutrient deficient soils.

Bacillus megatherium has a strong ability to decompose phosphorus compounds in soil. The bacterium is also a saprophyte (which is to say that it decomposes animal and plant remains in the soil into forms accessible for uptake by plants to use for healthy growing. Phosphorus is one of the three major or primary nutrients for plants that were originally rich in the soil. However, most agricultural soils have a lack of plant-available phosphorus. This, in conjunction with the practice of using phosphate fertilisers in large amounts in search of high yields leads to a situation where there are often significant amounts of phosphorus compounds sitting undissolved in the soil. The *Bacillus* bacteria in Bactivate Plus with their phosphorus decomposing effect promote the availability of the phosphorus that is often already sitting in the soil after prolonged fertilisation. *Bacillus megatherium* therefore is of great assistance to improve the utilisation of the phosphorus element in the soil for increased and healthy plant growth.

Bacillus subtilis is known for its capacity to multiply quickly in the soil. It also shares the ability common to other bacteria in Bactivate Plus Liquid in that they have the ability to form a tough, protectiveendospore, allowing the organisms to tolerate extreme environmental conditions. It has a strong
capacity to produce proteinase, diastase and pectase. It is the major *Bacillus* that decomposes animal and plant remains into available nitrogen in the soil. These bacteria live within specialised nodules on the root systems of plants, where they process atmospheric nitrogen into a form available for the plants to use. Thus *Bacillus subtilis* frees up soil nutrients in both soil and air for plant use.

Bacillus licheniformis is a facultative anaerobe bacteria that proliferates in soil. It is capable of decomposing protein and lignin to provide nutrition for plants in forms such as amino acids. It can effectively decompose organic matter in the soil and thereby provides nutrition for the growth of plants. The strain present in Bactivate Plus Liquid has extensive colonisation and competitive abilities for sustainable soil management, and plays a key role in plant growth and performance.

THE HUMATE BASE

A reserve of the humate (organic matter) is important in the maintenance of soil fertility. Humates generate physical and chemical improvements storing moisture and nutritional elements, and acting as protective agents agains natural phenomena such as erosion and leaching. Humates, through cumulative effect, influence the development of organic matter in soil and harvest yields.

APPLICATION

22 litre pack combination (3 separate bottles) to 500 litre water will treat 2 hectares.

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