

## Using EM for Agriculture

EM works by getting the natural processes to function, the way nature intended by stimulating biological activity in the soil and plant. Using EM will improve crop and pasture yields and enhance fertiliser performance.

Soil health is the key to producing a good yield whether it is pasture, crops or vegetables. Research has shown that applying EM to the soil/plant ecosystem can improve soil quality, soil health, and the growth, yield, and quality of crops.

Using EM will enhance the biological system of your farm by:

### Building soil carbon – enhance carbon sequestration

- EM will help the decomposition process of organic materials, and during fermentation will produce normally unavailable organic acids, such as lactic acid, acetic acid, amino acid, malic acid and bioactive substances and vitamins. A key ingredient in this process is organic matter, which is supplied by pasture residuals, (dead matter) recycling crop residues, green manures and animal manure. In addition, this process leads to increased humus in the soil enhancing fertility and soil health. Earthworm numbers will also increase with the use of EM to further aid soil health and performance.

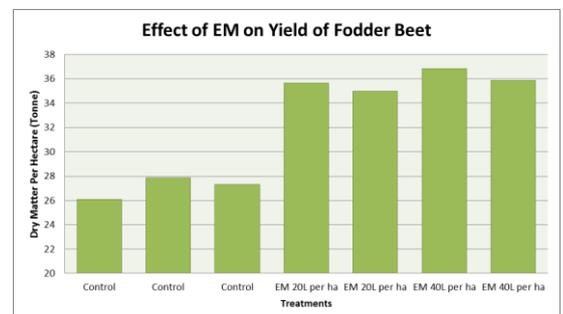
### Enhancing fertiliser inputs

- The microbes in EM<sup>®</sup> will solubilise compounds both organic and inorganic that are largely unavailable to plants and make them available for uptake by the plants root system allowing the plant to put more energy into growth. In performing this important function, the Microbes create a more efficient use of added nutrients, generating a better growth response from fertiliser inputs. Also our research has demonstrated the ability to lower fertiliser use while still gaining the same yield. Research has shown the microbes in EM<sup>®</sup> stimulate Mycorrhizae and Trichoderma further enhancing nutrient uptake and the plants root system. EM<sup>®</sup> works effectively with most fertiliser and can be sprayed on with most pesticides and herbicides, decreasing your application costs.



### Improving Yields

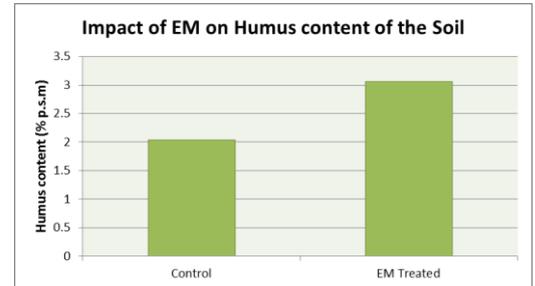
- EM works firstly through effective organic matter recycling which builds humus, the food for your soil and plants. It will also enhance fertiliser and nutrient breakdown in the soil and uptake by plants, will give improvements in nitrogen fixation and stimulate mycorrhizal activity.
- This has two main functions, firstly it creates better growing conditions and this leads to a stronger healthier plant. Secondly it provides competitive exclusion, which means that it out-competes pathogens for space, by inoculating the leaf surfaces with beneficial microbes. The cumulative effect of all of these functions is a higher yielding crop.





## Building Soil Humus

- EM efficiently breaks down organic matter into stable humus, a key component to aggregate formation, by reducing oxidative forces that primarily rob the soil of Carbon and Nitrogen in the form of methane and ammonium gases, respectively. This is achieved from a reduction of available Hydrogen ions due to a favourable change of organic acid composition and concentration in the soil. The result is that a greater amount of organic matter is converted to humus, aiding in aggregate formation.



## Improved Root Structure

- This shows the difference between a paddock of clover treated with EM and one without. The main differences are the improved root structure and many nodules on the treated paddock. There was also a much better breakdown of organic matter in the soil.



## EM's Impact on Soil Compaction

- EM will support the growth of other beneficial organisms like mycorrhizae, worms, and insects already in your soil, bringing nature back into balance. It will also produce lots of polysaccharides - glues that hold the soil together and hold in moisture, improving drought resistance. A healthy soil and stimulated biological activity help build stable aggregate and soil structure. Increase aggregate stability prevents the pore spaces between the aggregates from collapsing during heavy, saturating rains and reduces compaction. Improved soil aggregate stability reduces soil erosion and run-off. Soils are better able to absorb and retain moisture, as well as cycle nutrients.

