



## **TM Agricultural (TerraMend)**

### **An overview**

One of the keys to good farm productivity is to ensure good soil fertility, a balanced nutrient density and the biological health of the soil for optimum pasture/crop growth, pasture quality, utilisation, root length density and the suppression of weeds and pests. The biological life of the soil is the key being the 'engine room' of a farm. Unfortunately our awareness of this fact is inadequate within the agricultural industry and we need to raise the bar.

It has become apparent from many soil tests that while the microbial biomass is in many cases OK, the soil microbes and earthworms are not active and are half asleep. A key to take our farms to the next level is to wake up the biological fraction of the soil. To this end, TM (TerraMend) is a product that is worth looking at more closely.

While TM has little in the way of incorporated nutrients or 'biology' and could wrongly be described as 'snake oil' by some, we often miss the point because we fail to recognise that these products work because they promote the biomass, diversity and most notably the activity of the biological fraction of the soil. As mentioned above, many of our soils can have quite a good microbial biomass but the microbes are inactive and need products such as biological activators to wake them up, enabling a much more efficient release and uptake of the nutrients applied and those locked up in the soil. The result is less fertiliser needed, reducing both costs and the environmental footprint of the farm.

### **Application rates of TM**

TM is applied as a folia at a rate of just 250 mls/ha at a cost of \$19.80/ha.

- For ground spreading on pasture, apply 400 mls/ha in the spring and autumn in the first year and there after just one application of 250 mls/ha/yr in early spring. The TM is added to a minimum of 100 litres of water per ha and applied on recently grazed pasture just before a rainfall to wash the TM into the soil.
- For aerial spreading, 250mls of TM is added to a minimum of 50 litres of water per ha.
- For row crops, arable, and forage crops, apply 500mls/ha in direct contact with the soil prior to sowing. It can be included with a pre-emergence herbicide.
- Can be included with a range of thistle sprays because it is not pH sensitive
- For all commercial orchards and vineyards, apply 250mls Spring and Autumn annually. Three applications annually for tree crops.

**Costs** – at an application rate of 250 mls/ha

10 litres of TM (sufficient to do 40 ha) costs \$792 + GST

5 litres is \$396 + GST (20 ha)

1 litre is \$79.20 + GST (4 ha)

For orders of 10 litres or more, TM is couriered to the farm at no freightage cost.

### **Benefits of TM**

From the information available from both trial work and observations made to-date, TM would appear to have the following characteristics:

1. Increases microbial biomass, diversity & activity
2. Promotes plant growth
3. Promotes the root system
4. Promotes N fixing leguminous nodules and probably the free-living N fixing bacteria

5. Improves the efficiency of nutrient supply and uptake, reducing fertiliser expenditure
6. Acts as a nutrient regulator. For example, reduces and buffers the effect of high Mg and Na
7. Helps to neutralise acidic soils
8. Raises the brix (sugar) level of the plant and as a result:
  - a) increases the energy level of the pasture improving rumen digestion and the feed conversion efficiency of the pasture into milk, meat and fibre
  - b) improves the palatability of the pasture
  - c) lowers the freezing point of the plant sap, reducing the susceptibility of pastures and crops to frost damage
  - d) increases the drought resistance of a plant by increasing the leaf water potential and stomatal conductance of the leaf.
  - e) decreases the susceptibility to insect/pest attack. Insects do not have a pancreas and therefore 1) cannot digest plants with higher carbohydrates and sugar levels, and 2) cannot regulate blood sugar levels
9. Reduces the use of insecticides, pesticides and fungicides
10. Acts as a soil conditioner – Improves soil structure, porosity, colour & air capacity of both non-dispersive and dispersive soils. Softens compacted hard ground and breaks down large soil clods
11. Increases (sequesters) soil C
12. Increases the water-holding capacity of the soil
13. Decreases water repellency (hydrophobicity) in soils
14. Promotes crop vigour and health

Collectively, the above characteristics would provide farmers with a powerful tool to significantly lift on-farm performance (at less cost) while at the same time decrease a farms environmental footprint, both in terms of sequestering soil carbon and reducing nutrient loss and GHG emissions. Governmental and regulatory authority focus on these aspects is increasing.

The above 14 points provide a compelling list of characteristics, anyone of which would justify looking at incorporating products such as this into a fertiliser regime or applying directly onto the soil. At the very least it should be trialled in treated and untreated split paddocks.

Twenty independent trials have been conducted on TM. It has been applied in many different countries (including Canada, Australia, China, Mexico and NZ ) on a wide variety of different soil types in different climatic zones under different land uses including dairy, dry stock, cereals, beans, cotton, tea, forestry etc. The measured and observed results to-date have been very compelling (visit [www.bestenvirotech.com.au](http://www.bestenvirotech.com.au)). Unfortunately, science often lags behind what we see happening in the field. While a certain amount of trial work already underpins TM, my personal view is we should not wait for the definitive science to be done (as necessary as it is) but invoke for ourselves the principle of biological activation and observe and assess its benefits.

T. Graham Shepherd  
 Soil Scientist/Agricultural Advisor  
 BioAgriNomics Ltd  
 6 Parata Street, Palmerston North 4410  
 Tel.: 06 355 2717; Mobile: 021 515 703  
 E-mail: [gshepherd@BioAgriNomics.com](mailto:gshepherd@BioAgriNomics.com)  
 Web: [www.BioAgriNomics.com](http://www.BioAgriNomics.com)