

GREAT LAND®

- ✓ Advanced Biotechnology
- ✓ Quality Assured
- ✓ Australian Owned & Made

LIQUID BIOLOGICAL SOIL CONDITIONER

FEATURES, FUNCTIONS AND BENEFITS

Features

- **Patented liquid microbial soil conditioner.**
- **Contains five bacterial species, each at minimum population of 10⁷ (10 million) CFU per mL, and one yeast. Species are:**
 - *Acetobacter fabarum*
 - *Lactobacillus parafarraginis*
 - *Lactobacillus buchneri*
 - *Lactobacillus rami*
 - *Lactobacillus zeae*
 - *Candida ethanolica* (yeast).

All species of *Lactobacillus* are gram positive, facultative anaerobic bacteria are able to survive and function in aerobic and anaerobic conditions.

- **Certified as an input for organic farming.**

Compliant with the USDA National Organic Program (NOP).



Enhanced density of pasture and clover following Great Land treatment



Functions

- Enhances soil characteristics that enable better availability and utilization of nutrients.

Many soil nutrients are unavailable to the plant as they are bound to soil particles, or complexed with inorganic and organic compounds. Soil biology is needed to release these 'locked-up' nutrients, as well as atmospheric nitrogen, and make them available to the plant. Great Land contributes to this process either directly through the production of organic acids, or indirectly by enhancing the growth of other beneficial microbes such as mycorrhizal fungi and nitrogen-fixing bacteria.
- Great Land may aid in reducing the impact of disease and therefore improved yield, either through changing the soil microbiome that leads to suppressing specific pathogens, by improving the plant's own defences against pathogens, or both.

In the complex biological environment of soil, significant interactions are observed between the function of Great Land® microbes and the benefits they confer on the plant, other soil biology and grazing animals. Applying Great Land® is one of the many practices needed to yield the benefits of a fully functioning biological farming system.

Benefits

- Builds beneficial microbes for improved long term soil health.
- Better root development leads to greater access to soil moisture and nutrients.
- Increased forage production of pastures, silage and hay.
- Improved clover content, pasture density, palatability and uniformity of grazing.
- Weed suppression due to increased pasture and legume density.
- Potential to reduce inputs.

Farmers can become less reliant on conventional chemicals when the biological system is working to improve nutrient use efficiency and inducing plant and animal resilience to environmental and disease stress.
- Improved soil structure and increased capacity for holding more water and nutrients. Creates better conditions for growth of all beneficial soil biology, including mycorrhizal fungi, to facilitate higher levels of soil organic matter and micro aggregation of soil particles.
- May lead to fewer animal health ailments due to improved nutritional quality of fodder.

Sugarcane treatment trials demonstrating impact of Great Land on root and shoot development



Root development: untreated (L) and treated (R)

MICROBIOME IMPACT

Application

Target	Plant root zone.											
Conditions	<p>Minimum 10°C soil temperature and reasonable soil moisture content.</p> <p>Best performance is seen when soil moisture conditions can be maintained during the productive phase of plants, and soils are well balanced in nutrients and in structure. Recommendations to achieve this are:</p> <ol style="list-style-type: none"> Maintain exchangeable cations at the ideal levels listed here: <table border="1" data-bbox="405 622 1476 824"> <tr> <td>Calcium</td> <td>68-72%</td> <td rowspan="5">All cations contribute to a desirable pH for plant and biological requirements. This ideal balance will achieve pH in the range of 6 to 6.4 (1:5 water) [equivalent to 5.5-5.9, CaCl₂].</td> </tr> <tr> <td>Magnesium</td> <td>10-12%</td> </tr> <tr> <td>Potassium</td> <td>4-5%</td> </tr> <tr> <td>Sodium</td> <td>1.5%</td> </tr> <tr> <td>Hydrogen</td> <td>10%</td> </tr> </table> If pH is above 6.5 (1:5 water) [6.0 CaCl₂] addition of elemental sulphur is recommended to achieve 60-80 ppm of available sulphur. All soil microbes have requirement for trace elements (micronutrients) to enable optimum biological activity – sporulation and development. We recommend minimum plant requirement levels are present in tissue analysis or soil analysis for effective results from Great Land. 	Calcium	68-72%	All cations contribute to a desirable pH for plant and biological requirements. This ideal balance will achieve pH in the range of 6 to 6.4 (1:5 water) [equivalent to 5.5-5.9, CaCl ₂].	Magnesium	10-12%	Potassium	4-5%	Sodium	1.5%	Hydrogen	10%
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Magnesium	10-12%											
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Timing	<p>Apply late in the day to avoid peak ambient heat periods.</p> <p>Apply before or during rain events to ensure flushing of product into the root zone.</p>											
Method	<p>Dryland: boom spray.</p> <p>Irrigated: fertigation via tape or overhead systems. Ideally inject Great Land during the middle third of the fertigation event.</p> <p>Flood irrigation: recommended to use boom spray for more even distribution of product.</p>											
Tank-Mixing Compatibility	<p>Refer Tank-Mixing Compatibility Register – pages 18-20</p> <p>The Register is updated occasionally and available at www.terrigen.com.au.</p>											
Great Land Rate	10 litres Great Land per hectare at each application											
Microbial Food Source Rate	<p>10 litres Liquid Fish Emulsion (cold processed) per hectare at each application, and 5- 10 litres Liquid Kelp Emulsion (cold processed) per hectare at each application.</p> <p>Please consult your Terragen Biotech representative for practical application procedures.</p>											
Water Rate	<p>Boom spray: 60 litres to 150 litres of water per hectare – higher water rates allow for better penetration of microbes into the soil.</p> <p>Fertigation: dilute Great Land to a volume that enables even distribution through the fertigation event.</p>											
Frequency	2 to 3 times per year aligning with forage growth periods – early autumn break, late autumn and spring.											
Withholding periods	Nil, certified organic.											

Storage & Handling

Storage	<p>Containers should be stored under cover away from direct sunlight and retain the vented cap.</p> <p>Recommended shelf life of 6 months applies from production dates to opening of the container.</p>
Agitation	Containers must be agitated prior to decanting, then diluted in preparation before prompt application.