PROTECTING YOUR MOST VITAL ASSET

What you can do for your Soil

THE BASICS

Soil sustains life.

Healthy soil is not only the foundation of the world's food system but the foundation also of your agricultural enterprise.

Healthy soils produce healthy crops and pastures that in turn provide nutrition and daily sustenance for people everywhere.

Maintaining healthy soils demands understanding, knowledge, care and effort from farmers and growers everywhere. Our soils are not endlessly accommodating, benevolent, generous, good-natured and giving – they are a living, dynamic ecosystem that requires both understanding and management if they are to survive and keep performing well.

If soil is not nurtured, or if it is exploited for crop production without goodness and organic matter being restored to it, nutrient cycles become interrupted and soil fertility declines. We risk compromising, or even destroying the balance in the agricultural ecosystem if care and attention to the soil is withheld. By definition alone, farming disturbs the natural soil processes, including that of the important cycle of release and uptake of nutrients.

"THE ONLY ESSENTIAL INDUSTRY ON EARTH"

It is often said that agriculture is the only essential industry on earth. This then is all the more reason to understand the important role that you can play in underwriting the management and care of your precious soil through modern farming practice and restorative agricultural processes.

At RLF we recognise that in today's modern agricultural industry, crops and pastures obtain nutrients from both natural (i.e. organic matter and naturally occurring minerals) and external sources (fertilisers and land management practices). And we recognise that the ability of these two sources to blend and function harmoniously is pivotal to the success and longevity of soil health and sustainability.

It is this balance that upholds agricultural business and enterprise.

- This is the basis of our focus on agriculture.
- This is the basis of our approach to engineering and manufacturing liquid fertiliser products that support sustainable and restorative practices for the soil, that in turn support greater crop health and yield.

ORGANIC MATTER AND NATURAL MINERALS

Organic matter is the lifeblood of fertile, productive soil. Put simply – without it, food, animal feed, fibre and fuel production is not sustainable.

Organic matter is defined as any living or dead plant or animal material. It includes living plant root systems, plant litter and leaves, animal manures from grazing stock, plant and animal remains at varying stages of decomposition, along with micro-organisms and their excretions. This fascinating and complex natural process (aided by earthworms and other higher organisms) decompose these materials, the end result of which is humus. This process of decomposition releases nutrients, which can then be taken up by growing plant roots. Humus stores plant nutrients, provides a beneficial habitat for soil organisms, holds moisture and improves soil structure.

Organic matter is crucial, and even in small amounts it is very important.

Nutrient exchange between organic matter, water and soil is essential to soil fertility and needs to be maintained for sustainable production purposes.

FERTILISERS AND LAND MANAGEMENT PRACTICES

Land use and on-farm practices can also affect soil organic matter.

Farming systems have traditionally mined the soil for nutrients and reduced soil organic matter through repetitive harvesting of crops. The overuse of granular fertilisers (often believing that 'more is better') and inadequate efforts to replenish nutrients and restore soil quality have also contributed. Sadly, this decline will continue until management practices are improved, or until an extended or enforced period of fallow allows a gradual recovery through natural ecological processes. Often, only diversified cropping systems or well-managed mixed crop-livestock systems are able to maintain a balance between the process of nutrient and organic matter supply and removal. And this does not always fit well with the need to produce certain crop types and meet specific crop targets to fulfil the demands of supply and increasing food need.

You can take many actions to maintain, improve and rebuild soils - especially those soils that have been under cultivation for a long time.

These actions are broadly achieved through the maximisation, retention and recycling of organic matter and plant nutrients, and by minimising the loss of these soil components to leaching, run-off and erosion.

You can :

- grow perennial grasses and pasture in an effort to capitalise on the product of quick turnaround plants
- grow cereal crops that leave significant amounts of organic matter in their dead roots and stubbles following harvest
- grow green manure crops to provide protective cover until they are ploughed back into the soil
- spread animal manures
- keep cultivation to a minimum and allow the exposed humus added access to air and faster decomposition
- concentrate organic matter by making more effective use of what already exists

None of these things however are 'quick fixes', rather systematic programs and practices that can often bring with them difficulties of their own with respect to the incorporation of organic matter.

Rebuilding soil quality and health through appropriate farming practices may take several years, and especially in dry land areas where limited moisture reduces the soil's capacity to recover through biological activity. The challenge therefore is to identify on-farm practices that can intervene to help promote the formation of healthy soil organic matter and microbial activity, whilst still meeting the goals of greater productivity and profitability for farmers and growers.

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RE-THINK YOUR APPROACH

RLF's specialised products play an important role in these events.

RLF's proven products of Integrated Fertiliser Management, (through seed priming and foliar fertilising as integrated steps into an adjusted local practice routine) are known to :

Integrated Fertiliser Management

These outcomes are all achieved when a plant develops a large root mass with healthy rhizosphere that stimulates microbial activity. The plant exudate that results then enables the conversion of soil based organic matter into inorganic 'plant available' nutrient.

We are confident that with very minimal disruption to current on-farm practices, with minimal, or no effect to the farm budget, 'by thinking outside of the box' with respect to fertiliser routines, and by embracing modern-day fertiliser strategies with their genesis in plant physiology, very real results and benefits will follow - not only for our soils but for your cropping enterprise as well.

Implementing strategies that develop a strong healthy soil structure is one of the very best decisions that you can make.

By nurturing your soil, and returning goodness to it at every opportunity, through the building of greater organic mass will bring many benefits.

Some of these benefits are :

1. **Improved Soil Structure**

   As organic matter decays to humus, the humus molecules bring together (or bind) the particles of sand, silt, clay and organic matter into aggregates that will not break down in water. This effect of weaving and binding the roots and fungal strands in the decomposing organic matter with the soil makes these aggregates stable in water.

2. **Improved Drainage**

   The stable aggregates have larger spaces between them, allowing air and water to circulate more readily through the soil.

3. **Improved Moisture Retention**

   The aggregates are also more efficient and effective in holding moisture for use by plants. Humus molecules also absorb and hold large quantities of water ready for use by the plant's roots.

4. **Improved Access to Nutrients**

   Organic matter is an important source of nitrogen, phosphorous and sulphur. These nutrients become 'available' as the organic matter is decomposed by microorganisms, and this source provides nutrient in a slow release form. If crops continue to be removed from the soil, there remains no organic matter for microbes to feed on and break down into nutrients – with the result that fewer nutrients are available to the next crop of plants.

5. **Improved Cation Exchange Capacity**

   Humus molecules are colloids (a two-phase system in which one material in an extremely divided state is dispersed through a second system, i.e. clay in water). They are negatively charged structures with an enormous surface area and this means they can attract and hold huge quantities of positively charged nutrients such as calcium, magnesium and potassium – storing them until the plant needs to access them. This cation exchange capacity expresses the number of exchangeable cations per dry weight of soil is capable of holding a given pH value, and available for exchange with the water solution. In general, the higher the exchange capacity, the higher the fertility of the soil.

A TRUSTED BRAND AND PEDIGREE

RLF has undertaken highly sophisticated research, development and evaluation programs as we have built our products over the past 25-years.

We have focused our efforts and endeavour on bringing about positive change for the health and sustainability of the soil, whilst at the same time driving up yield potential and profitability for our customers.

Seed Priming

Ultra Foliar

Spearheading our comprehensive range are the world-leading technologies of **BSN Seed Priming** and the **Ultra Foliar** range of speciality fertilisers. Together, these products are changing the face of modern-day farming.

These products form the new generation fertiliser practice of IFM (Integrated Fertiliser Management). It will change the way in which you view your crops, profitability and production potential for the future.

RLF is helping its customers address the imperative of sustainable farming and finding solutions for sensible crop nutrition and soil protection choices.

Click here to view how IFM works and see what it can do for you.

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