

Dairy Programmes

BioAg Fertility Programme - Support Notes

BioAg soil and pasture fertility programme can involve 3 including dairy effluent

1] **Base Soil Programme** – this is an annual or bi-annual application.

The base programme is targeted at stimulating the natural soil microbiome rather than the pasture and therefore timing is commonly on grazed down pastures with higher water rates. Or pre sowing for crops or new pastures. Liquid phases of the base application can be applied via any air, ground, or irrigation application systems.

The base programme will evolve from year to year as the microbial biomass and diversity increases and functional biological activity is established thereby maximising the utilisation of plant available minerals. Creation and enhancement of humus derived from organic matter supports the soil CEC and soil carbon and thus the soil's ability to retain and buffer more nutrients. Maintenance of an optimal carbon:nitrogen ratio is supported. Mycorrhizal fungi stimulation supports carbon sequestration, mobility of P and Ca, and mobility of water from soil to plant.

Primary Inputs:

- **BioAg Soil & Seed Organic** – Applied as a soil drench with aim to reach soil surface. Provides the complex food supply for the micro-organisms in the soil to give them energy so that **balanced and efficient** nutrients are available to the pasture (both roots and herbage). This food supply is a complex of Vitamins, Amino Acids, Hormones (natural), Enzymes, Proteins and special mineral compounds providing high levels of biochemical energy (by products of humus formation). Soil & Seed typically applied twice per annum.
- **Phosphate** – using *PSM inoculated RPR as Superb BAP. Required for microorganism energy and to stimulate the organisms to draw more phosphate from the soil i.e., stimulus of phosphate solubilising microbes (PSM's) to create plant available P. Phosphate is one of the key energy drivers in the soil/plant system and biological energy.
- **Calcium (typically lime)** – is the foundation energy source for the soil/plant system. While good biological activity is being established calcium will continually be available from the base reserves in your soil. It may require periodic applications to act as a catalyst and provide maintenance.
- All core minerals and trace elements incorporated as assessed case by case
- **Capital Fertiliser** - BioAg provides a complete year-round programme incorporating capital fertiliser/minerals and/or maintenance as appropriate.

*PSM = Phosphate Solubilising Microbes

2] **Foliar Programme** – targeted application to the pasture or crops using BioAg Roots & Shoots during active growth phases (vegetative growth) which stimulates growth, nutritive quality, and maintenance of nutrient cycling between plant and soil. This further enhances root development and function. Application timing is usually following grazing or forage harvesting **at the point where the pasture begins sprouting new leaf**, typically 5 – 7 days post grazing – climate and moisture dependent. Roots & Shoots supports the arboreal foodweb.

Dairy season – there are 1 – 2 repeating foliar applications between spring and autumn for which the interval varies according to grazing rotation intensity, climatic conditions and/or year-round milking.

Dry stock –foliar applications used strategically on case-by-case basis or in support of high-quality pasture in intensive finishing operations and for enhanced forage crop quality.

Primary Inputs - foliar:

- **BioAg Roots & Shoots Organic**– supplies Vitamins, Hormones, Amino Acids, Enzymes, Proteins, and special mineral forms (high biochemical/metabolic energy content). Roots & Shoots feeds the microorganisms on the plant (arboreal foodweb), is absorbed into the plant, and balances it and when sugars made from photosynthesis are shipped back to the roots each night the remainder of the Roots & Shoots is tied in with it. Thus, the Roots & Shoots has a stimulating effect on the soil microorganisms and plant rhizosphere to further support the base established by Soil & Seed application.

Subsequent applications of Roots & Shoots refresh the food supply with the frequency based on the intensity of grazing and growth required.

- Nitrogen – typically in the form of fish hydrolysate if required.
- Trace elements if required

4] **Effluent treatment** - the soil programme may be complimented with **DFD** treated effluent involving a site-specific effluent treatment programme and soil/pasture management regime. **DFD** is suitable for animal effluent treatment, wastewater, aerobic stimulation of ponds, composting and septic systems. DFD can also be used on calf bedding.

Complexed Biological Food Resources – the BioAg Liquid Biological Cultures

The BioAg cultures are based on biologically advanced soils which host an enormously diverse range of beneficial micro-organisms. These cultures are prepared in a unique three stage fermentation process for the natural production of primary and secondary metabolites. This mass of complex of metabolites includes – vitamins, minerals, proteins, enzymes, amino acids, carbohydrates, and natural growth promoters. The metabolites are in forms that are most readily available to micro-organisms in the soil and on plant surfaces. **They are readily assimilated and do not require further digestion or transformation to be available to soil and plant life.** No other additions of stimulants are required.