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Harvest Agri Ltd
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FERTI-LINK™

Microbial Soil Fertility Probiotic



Contains 5 strains of Plant Growth Promoting Rhizobacteria Bacillus spp. 4×10^{10} cfu / ml, sufficient for one hectare (10 000 m²) on all crops*.

*Most crops require as little as 50 ml per hectare per application.

FERTI-LINK IS SUITABLE FOR USE AS A PLANT GROWTH PROMOTOR ON ALL SOILS AND ON ALL CROPS, PASTURES AND TURF UNDER ALL CULTIVATION REGIMES.

➤➤➤ MIGHTY MICROBES

Ferti-Link is a probiotic microbial biofertilizer, also known as a PGPR (Plant Growth-Promoting Rhizobacteria) mix. It works by introducing a range of beneficial microbes into the soil.

These microbes help plants by:

- **Enhancing Nutrient Availability:** They solubilize nutrients in the soil, making them easier for plants to absorb.
- **Competing with Pathogens:** By occupying space and consuming resources, they compete for and reduce the habitat available to harmful pathogens, thus promoting healthier plant growth.
- **Hormonal regulation:** The bacteria in Ferti-Link produce auxins, cytokinins, and gibberellins to promote plant growth and development.
- **Improving Root Health:** Their interactions in the soil create a better environment for roots to grow and take up nutrients efficiently.
- **Inducing Systemic Resistance:** The plant's immune response is primed and ready for quicker and stronger reactions to stressors.

Ferti-Link supports plant growth and health by fostering a beneficial microbial community in the soil that directly benefits plant nutrition and resilience. **Healthy plants in healthy soil don't get sick easily and perform at their best!**

WHAT IS FERTI-LINK™ ?

BENEFITS OF USING FERTI-LINK™

- Healthier, stronger, deeper root systems.
- Faster and stronger germination of treated seeds. Microbes that immediately colonise the root zone upon germination help suppress pathogen infiltration and provide the plant with the benefits of plant growth-promoting rhizobacteria from the start.
- Better nutrient uptake and reduction in the amounts of synthetic fertilisers required.
- Microbial biofilms bind soil particles together, which improve soil porosity, texture, fertility, and structure. This leads to better air and water flow, resulting in healthier roots, more stable soil, and overall improved plant growth.
- The microbes help create an environment which is attractive to soil dwellers like earthworms and arthropods, which in turn loosen compacted soil and enhance soil oxygenation.
- Greater resistance to extreme weather conditions because of the formation of a biofilm which holds moisture in rhizosphere.
- Reduce the reliance on chemical pesticides by promoting natural suppression of common plant diseases.
- Naturally occurring microbes which pose no risk to humans, animals or the environment.



MODE OF ACTION OF FERTI-LINK™

➤➤➤ GROWTH STIMULATION

- The bacillus bacteria formulation in Ferti-Link is unique in its use of all of the recognised growth stimulation functions. It solubilises phosphates, fixes nitrogen, and with the production of siderophores makes nutrients available to the plant. Ferti-Link produces adenine, which when combined with the sugars in the root exudates is converted in an enzymatic reaction to adenosine. Together with the phosphates that have already been solubilised by the microbes, adenosine is converted to adenosine triphosphate (ATP). ATP is the essential source of energy that moves minerals and nutrients from the soil into the plant.
- The biofilm produced by colonising bacteria holds the enzymes and nutrients close to the root surfaces allowing for better transfer of the nutrients to the roots.
- Ferti-Link produces jasmonic acid which helps repair damaged root and plant tissue, allowing the plant to recover more quickly from events such as frost, insect attack or disease.

PGPR PAIRING

Note that where additional disease suppression is desired, the application of *Ferti-Link™* can be alternated with an equal amount of *ToneUp™*, a sister PGPR product specifically formulated to aid disease suppression.

➤➤➤ DISEASE SUPPRESSION

Ferti-Link stimulates the soils own defence mechanisms to naturally suppress most common plant diseases by way of -

- Competition for available nutrients.
- Siderophore production which prioritises nutrient uptake by the bacteria, limiting pathogenic fungal reproduction and growth.
- The production of biofilms on the roots which act as barriers against pathogenic micro-organisms.



GENERAL DIRECTIONS FOR USE OF FERTI-LINK™

➤➤➤ BEST PRACTICE

- Ferti-Link can be applied in as much water as is required by all known methods including in-furrow application, seed application, pivot, boom spray, micros, drippers and aerial spray.
- Apply 50ml / Ha as a soil drench on turf, pasture or planted lands. Will not damage existing foliage. Apply in or on the plant furrow for row crops and potatoes. Repeat as required, ideally every 3-4 weeks.
- Can be applied directly to seed. Thus, if planting 200 kg seed per ha, use 50 ml per 200 kg seed. If planting 300 kg seed per ha, still use 50 ml per ha. Phone 07984 018400 for further advice.
- Empty the contents of plastic bottle into a jug or slightly larger vessel, rinse bottle out with water into the mix. Stir. Can be added to spray tank with fertilisers and pesticides. Agitate to mix thoroughly.
- Can be co-applied with liquid fertiliser and almost all known agricultural chemicals except copper based fungicides and under all farming conditions (even in full sun or cold).
- Product is in spore form and will germinate when the environment is suitable for growth.
- Viable as a sealed product for at least two seasons under normal storage conditions. No cold chain is required.
- Based on extensive field experience, the bacteria in Ferti-Link will colonise the roots and organic matter in the rhizosphere to great effect. Whilst this is to be expected, performance cannot be guaranteed in all circumstances. If in doubt, please contact your distributor for advice.

➤➤➤ APPLICATION GUIDELINES

50ml Ferti-Link / hectare / application

Beans (dry & green)	At plant / seed treatment; at first flowering; repeat every 3 - 4 weeks
Blueberry, Strawberry	At bud; 1 week post fruit set; post-harvest
Cucurbits	At plant / seed treatment or furrow; at first flowering
Maize	Seed treatment / in furrow at plant
Ornamentals	At plant; repeat after 4-6 weeks
Pastures	Spring, mid-Summer, Autumn
Pome fruit (apples)	At early flower; 4 weeks later; post-harvest
Potatoes	At plant; at week 3, week 7, week 11
Row crops	At plant; repeat every 4 weeks
Stone Fruit	At bud; 1 week post fruit set; post-harvest
Table & grape vines	At 10cm shoot length; pre-flower; 3mm berry size; 4 weeks later
Tomatoes	At transplant; 4-6 leaf stage, repeat weekly / fortnight as required
Turf	Every 3 - 4 weeks
Vegetables	At plant / seed treatment; 4 weeks post germination
Wheat	At plant / seed treatment; 3 weeks post germination

➤➤➤ PRECAUTIONS

The microbes in Ferti-Link bacterial strains occur naturally in UK soils. They are classified as Bio Safety Level One and cause no threat to the environment, wildlife or humans. An MSDS is available on request. However, the following precautions constitute good handling and safe farming practice.

- Avoid contact with skin and eyes. If contact occurs, rinse with large amounts of water.
- Do not inhale spray mix.
- Store away from food, drink or animal feed.
- Keep out of reach of children, uninformed persons and animals.
- The empty bottle can be recycled with normal plastic waste.

Ferti-Link was developed in South Africa and trials were conducted by a variety of independent South African academic institutions. Most of the trials were done on large scale and a number of formulae were tested. Subsequent analysis of the data was aligned with the DNA of the relevant bacterial strains and provided the know how incorporated in the formulation of Ferti-Link and Tone Up.

It is important to understand that Ferti-Link is a SOIL treatment and the benefits to the crop are as a result of improved soil health. Benefits achieved include increased root growth (length and mass), increased root mass, increased yield (as much as 80%), suppression of diseases including pythium, fusarium, phytophthora and nematodes, increased seed yield (57% on wheat) and increased plant height amongst others.

FERTI-LINK™ TECHNICAL BACKGROUND

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