Blue Pacific MINERALS

CLEVER by NATURE

ATTIS

PHOSPHATE-SOLUBILISING BIOFERTILISER FOR NEW ZEALAND PASTURES & CROPS

ATTIS is a next-generation phosphate-solubilising inoculant powered by Priestia megaterium strain CH9100 (formerly Bacillus megaterium) - a naturally occurring soil bacterium that unlocks bound phosphorus (P) from both inorganic and organic sources.

By releasing organic acids (citric, malic, acetic, lactic) and enzymes (phytase, pectinase, phosphatase), **ATTIS** makes phosphorus more plant-available, improving root growth, nutrient-use efficiency, and yield.

Ideal for pasture renovation, maize, wheat, kale, and fodder beet, **ATTIS** helps New Zealand growers get more from every kilogram of P applied - naturally.

FEATURES:

- **Phosphate-Solubilising Bacteria:** Converts unavailable soil P into plant-available P through release of organic acids and enzymes.
- **Improved P Use Efficiency:** Introduces opportunities to reduce P fertiliser use rates, to maximise P uptake and reduce off-site impacts arising from loss of P.
- **Enhanced Root System:** Stimulates root volume and density for better water and nutrient access.
- **Natural Soil Activation:** Strengthens soil biology and improves nutrient cycling.
- **Seed, Soil or Fertiliser Compatible:** Can be applied on-seed, in-furrow or by fertigation.
- **Sustainable Alternative:** Reduces the need for mined phosphate fertilisers and associated CO_2 emissions.

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THE SCIENCE - HOW **ATTIS** WORKS

ATTIS works via two complementary modes of action.

MECHANISM	PROCESS	RESULT
1. Organic-Acid Chelation	P. megaterium secretes citric, malic, acetic & lactic acids that form ligands with Fe-, Al-, Mg-, Ca-sesquioxides in soil.	Releases Pi (phosphate) from insoluble inorganic complexes = instant P availability.
2. Enzymatic Hydrolysis of Organic P	Produces phytase, pectinase & phosphatases that liberate P from phytate and organic residues.	Mobilizes organic P pools for longer-term plant nutrition.

THE RESULT:

ATTIS bridges the gap between fertiliser P and the plant root - delivering a consistent, sustainable source of available P throughout crop growth.

TARGET CUSTOMERS

- Dairy farmers seeking to improve pasture P response while reducing input costs.
- Maize and arable growers targeting P efficiency and soil health.
- Agronomists and advisers focused on sustainable nutrient management plans.
- Contractors and fertiliser companies offering biological inoculant options.

FOR

AGRONOMISTS & ADVISERS FOCUSED ON **SUSTAINABLE NUTRIENT MANAGEMENT PLANS.**

ATTIS VS CONVENTIONAL FERTILISER P

	FERTILISER P	ATTIS BIOFERTILISER
Source	Mined phosphate rock → superphosphate	Naturally occurring soil microbe
Immediate availability	10–20 % used in year 1	Continuously mobilizes existing P bound to soil minerals or locked-up in organic materials
Residual P	Becomes locked in soil complexes	Converts locked P into usable form
Environmental impact	High energy & CO_2 emissions	When used with reduced application rates of fertiliser P, reduces carbon footprint, biological solution
Economic impact	Annual purchases of P fertiliser, only a portion of which is available to the plant	Partially avoids application of phosphate fertiliser, reducing crop production input costs
Application	Top-dressed or drilled	Seed, in-furrow, drench or fertigation

In a recent corn trial in Thailand, **ATTIS** replaced the recommended rate of phosphate fertiliser with no yield penalty (+15 % yield gain)

MODE OF ACTION SUMMARY TABLE

MODE	BIOLOGICAL FUNCTION	NZ RELEVANCE
Phosphate Solubilisation	Converts Ca-, Mg-, Fe-, Al-bound P to available forms	Low-P soils in Waikato, Taranaki, Canterbury
Enzymatic P Release	Breaks down organic P (phytate complexes)	Pasture & cropping systems with high organic matter
Root Colonisation	Forms symbiotic biofilm around roots	Pasture and forage systems under rotational grazing
Synergy with Mycorrhiza	Enhances P transporter activation	Wheat, maize, clover in mixed swards

CROP & PASTURE APPLICATIONS

CROP TYPE	TIMING	OBJECTIVE
Pasture (Ryegrass / Clover)	During over sowing or spring renovation	Enhance P availability for early growth of roots and shoots
Maize & Cereals	Seed treatment or in-furrow at planting	Increase P uptake for vigorous emergence and early ground cover
Kale / Fodder Beet	Seed treatment or in-furrow at planting	Improve early root establishment and early ground cover
Horticulture	In-furrow, drench, fertigation	Support rooting and flowering
Forage Crops	Seed treatment or in-furrow at planting	Reduce P lock-up and increase response

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PERFORMANCE EVIDENCE
FROM NOVONESIS TRIALS

- 15 % yield increase in corn replacing full P fertiliser rate (Thailand trial).
- 27 % increase in biomass in normal corn and 22 % in drought-stressed corn under greenhouse tests.
- Demonstrated rapid root colonisation and P release in 39 of 40 lab isolates tested.

KEY BENEFITS

- **Unlocks Fixed Phosphorus:** Converts bound P into plant-available forms.
- **Increases Root Biomass:** Supports deeper, stronger root systems.
- **Boosts Yield & Dry Matter:** Proven 15 % yield gain in field trials.
- **Improves P Use Efficiency:** Reduces fertiliser requirement and run-off risk.
- **Strengthens Soil Biology:** Stimulates beneficial microbes and mycorrhiza.
- **Supports Resilience:** Improved stress tolerance under dry or acidic conditions.

FORM:
Spore-forming bacterial powder

PACKAGING:
Sold in sachet form

RATE:
250 - 500 g / ha
(in-furrow or fertiliser mix)

COMPATIBILITY:
Liquid UAN, Dissolved Urea, and bio-enhanced fertiliser ranges

LABEL & SAFETY INFORMATION

- *Non-hazardous, biodegradable bacterial formulation.*
- *Safe for use with seed and fertigation .*
- *SDS and technical brochure available.*
- *QR code and digital content link to trial data and case studies.*

SCAN QR FOR TRIALS & DEMONSTRATIONS

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Blue Pacific MINERALS

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