

1. Stabilise P with Humates

- Humates complex with phosphates forming **phosphate humates**.
- This complexing process minimises the P **lock-up** rate, and increases the plant available P.
- Humates also contain **fulvic acid** which stimulates microbes that release locked up P in the soil.



2. Select the most appropriate and cost effective input

QUICK RELEASE

- **MAP** – alkaline soils
- **DAP** - acid soils
- **SUPER** - single, double, triple
- **MKP** (mono potassium phosphate)
- **PHOS-LIFE ORGANIC™**
- **GUANO**



SLOW RELEASE

- **HARD ROCK PHOSPHATE**
- **SOFT ROCK PHOSPHATE**
- **GUANO**



Choosing the Right Phosphate

- Use **slow release** forms for long term soil availability.
- Use **soluble P** to kick-start the system at planting.
- **Fertigate** and **foliar** spray as required throughout the growing season to boost crop health.

Acid treated phosphate is only ever needed for crop initiation in **field crops** and **vegetables**. It is rarely required in **orchard** and **pasture** situations



Combining Soluble and Slow Release

- **DAP/MAP** with humates plus **Guano Granules** or a similar soft rock phosphate alternative.

Rationale:

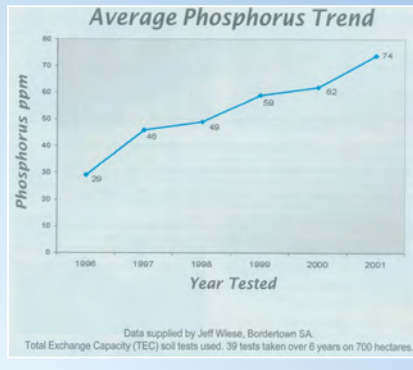
- The acid phosphate is buffered and stabilised by the humates.
- The Guano / SR offers citrate soluble and slow release phosphate so there is a complete release pattern throughout the crop cycle.
- **Soil life** is both protected and stimulated with this fusion approach.



Life-Force Base Blend Trial

Annual P input 4 ppm from 300 kg/ha/yr Life-Force Base Blend - expect P increase by 24 ppm, assuming no removal/losses.

The rise in phosphate from 29 ppm to 74 ppm, is a result of the **biological solubilisation** of phosphate.



3. Use P solubilising inoculums

- Apply **Nutri-Life Bio-P™** and brewed **Nutri-Life 4/20™**.
- **Liquid inject** or **seed treatment** with microbes at planting to solubilise P in root zone (ensure there are still adequate soil P levels).
- **Apply** microbes **regularly** throughout the season.
- AMF release P solubilising **exudates** and increase the plant root zone, allowing greater access to P and other nutrients.



4. Stubble Digestion to Increase Phosphorus

- **Stubble** contains masses of food which can be utilised to build microbial populations.
- Most soils are deficient in **cellulose digesting fungi**. The introduction of these creatures can be tremendously productive.
- These fungi are the key to building **soil carbon** and they release a suite of organic acids which **solubilise** locked up phosphorus in the soil.



5. Use Fulvic Acid to Solubilise P

- Fulvic acid a **natural acid** extracted from brown coal.
- Fulvic acid will **solubilise P**. It breaks apart phosphate complexes with **acidity** and it promotes phosphate **solubilising bacteria**.
- Apply Fulvic Acid (or humate granules for dry amendments) through **liquid inject** at planting or **fertiligation** throughout the growing season.



6. Using Legumes To Access Locked-up P

- **Legumes** offer much more than just nitrogen fixation.
- They are constantly releasing **acids** which break the bond between calcium and phosphate, and hence become a major tool to deliver plant available phosphate.
- **Inter-planting** or **rotational cropping** legumes with cereals is a very productive strategy.

