



Liquid nutrition at its best

FoliMAX BI-PASS™

Soil and Water Conditioner

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Many recycled irrigation water sources and calcareous (limestone) soils contain high levels of bicarbonate and carbonate, both of which can adversely impact plant growth by raising soil and water pH, increasing soil salinity, and affecting the availability and uptake of nutrients and many critical micro-nutrients from the soil.

Bi-Pass counteracts excess bicarbonate and carbonate in recycled/effluent irrigation water.

The organic compounds in Bi-Pass which include polyphenolic compounds and liginosulphonic acid to offset the antagonistic effect of soil and water based bicarbonate.

Bi-Pass can be used as a descaling agent to reduce Calcium scale deposits from irrigation lines. Normal use rates and intervals can prevent deposition and accumulation of lime scale. Higher rates may be required to clean out previously blocked lines.



Key Benefits of FoliMAX BI-PASS

- Reduces bicarbonate and carbonate in irrigation water and soil solution
- Contains micro nutrients and also increases critical micro nutrients that are catalysts for macro nutrient absorption by the plant
- Reduces Calcium scale deposits in irrigation lines
- Improves the plant availability of nutrients in the soil and water
- Highly soluble and compatible with other liquid applications
- Proven performance in turf management

FoliMAX BI-PASS Guaranteed Minimum Analysis:

Sulphur Compounds: 8.0%

Polyelectrolytes: 29.0%

Plant Derived Organic Acids: 34.0%

Inert Ingredients: 19.0%

FoliMAX BI-PASS Product Characteristics:

pH: 6.4

Specific Gravity: 1.18

Appearance: Brown, viscous product with slight ammonia smell

Solubility: 100%

Real results using real science

Carbonate and Bicarbonate are both anions (negatively charged) and therefore will attract cations (positively charged) namely calcium, magnesium, sodium, potassium. Carbonate and Bicarbonate readily bind with calcium forming calcium carbonate (CaCO_3) or Calcium Bicarbonate (Ca HCO_3).

Large amounts of bicarbonate ions in irrigation water will result in the precipitation (removal from solution) of calcium.

Furthermore when high bicarbonate irrigation water reaches the soil, the calcium can be removed (from being attached to the soil particle) and be less available for plant uptake.

This removal of calcium then allows for any sodium in solution to replace the calcium on exchange sites of the soil. Due to calcium having a 2+ charge and sodium having a 1+ charge, 2 sodium ions will replace 1 calcium ion. This will also have an effect on magnesium in the soil.

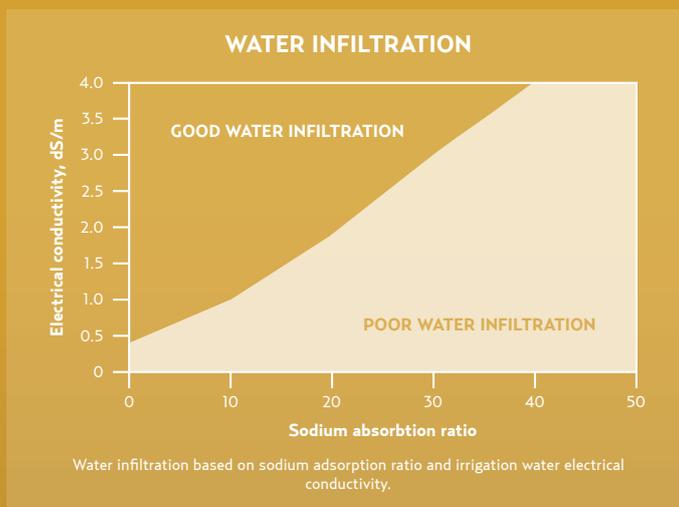
The influence high bicarbonates have on reducing the plant availability of calcium (and also magnesium) from the soil and water system also impact on the sodium





in solution. The high bicarbonates impact the Sodium Adsorption Ratio (SAR) by effectively increasing the dominance of sodium in solution due to the reduction in calcium and magnesium availability.

The impact that bicarbonates have on SAR can often be seen in a water analysis reported as 'Corrected SAR'. The SAR has direct impact on the stability of the soil aggregates and the overall water infiltration as seen in Figure 3. If the SAR is high and the EC is low then the rate of water infiltration into the soil can be reduced.



Continued use of high bicarbonate water leads to a high soil pH. When Na (Sodium) is the predominant cation in the soil, pH may be as high as 9.5. However, when Calcium predominates, soil pH generally stabilizes around 8.0. High pH can induce nutrient deficiencies and inefficiencies such as iron and manganese deficiencies by rendering these micronutrients unavailable to the plant roots. High soil pH can also favour the development of root diseases, such as Take-All Patch.



FoliMAX BI-PASS APPLICATION INFORMATION

Apply Bi-Pass through a boom spray at regular intervals to reduce the impact of bicarbonate within the soil profile. Apply in a minimum of 200L water per hectare and follow with 4-6mm irrigation. Do not apply when temperatures exceed 30°C. Alternatively, Bi-Pass can be applied directly as a dose treatment to the irrigation water to reduce the impact of bicarbonate and carbonate and reduce the occurrence of scale build-up in irrigation lines.

APPLICATION RATE CHART		
Situation	Rate/Ha	Comments
Initial Application: High Cut Turf (e.g. sportsfields, racetracks and fairways)	10-35L	Apply at 4-8 week intervals or as recommended by your Territory Manager.
Maintenance Application: High Cut Turf (e.g. sportsfields, racetracks and fairways)	4-20L	
Initial Application: Fine Cut Turf (e.g. golf and bowling greens)	8-25L	
Maintenance Application: Fine Cut Turf (e.g. golf and bowling greens)	4-15L	
As a Descaling Agent in irrigation lines		Apply through an injection or dosing unit directly into irrigation lines. Rate dependent on water analysis results, seek advice from your Territory Manager.

**FOR MORE INFORMATION ON FoliMAX BI-PASS
CONTACT YOUR LOCAL TERRITORY MANAGER
OR CALL 1800 631 008.**

www.nuturf.com.au

EMAIL: FoliMAX@nuturf.com.au

OTHER KEY PRODUCTS IN THE FoliMAX RANGE

FoliMAX Soil Prima

Soil Prima is a liquid soil conditioner that improves soil aggregation, soil structure and nutrient utilisation in the root zone. Contains modified patented humates, which acts as a complexing agent for mobilising soil nutrients in forms which are readily available for plants.



FoliMAX MLR-8

MLR-8 is a liquid soil ameliorant designed to improve soil performance including water movement, root development and aggregate stability. A perfect blend of soluble Calcium for soil amelioration and plant uptake, designed to improve the functional capacity of the soil.





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