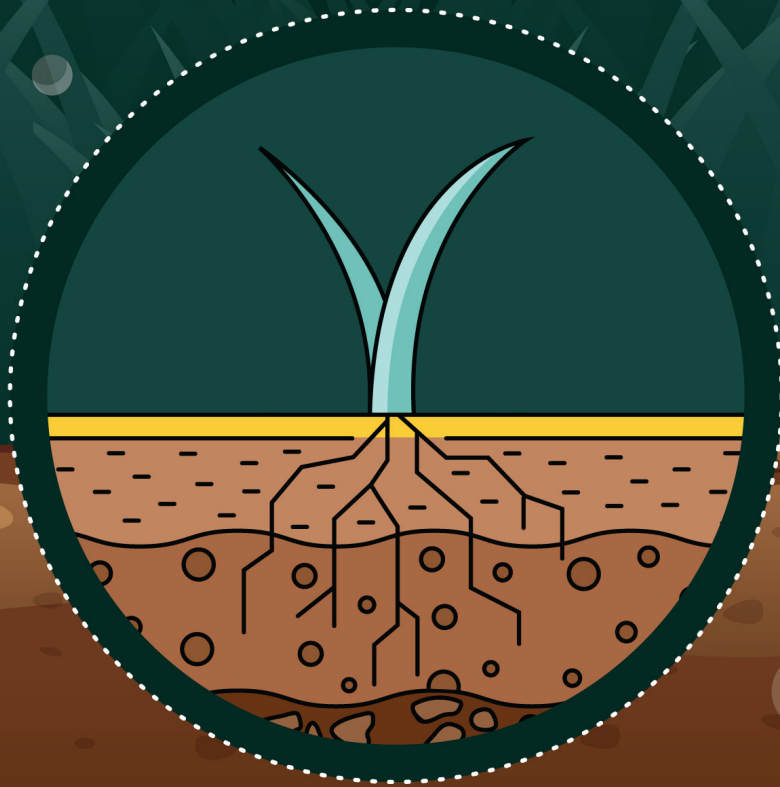




**ABUNDIGRO**  
nurturing soil biology



# SPORTS TURF PRODUCT PORTFOLIO



**Increased Root Zone Oxygenation**

Supports deeper root growth and vitality by enhancing oxygen availability, boosting energy production, and improving overall root health.

**Thatch Degradation**

Accelerates the breakdown of thatch through targeted enzymatic activity, improving soil structure and reducing compaction and black layer.

**Improved Percolation**

Enhances water infiltration and drainage by increasing soil porosity, preventing waterlogging and promoting healthier turf.



**Colour Enhancement**

Boosts vibrant, rich turf color through nutrient stimulation.

**Stress Resilience**

Increases tolerance to environmental and biotic stress factors.

**Nutrient Efficiency**

Optimizes nutrient uptake and promotes healthy soil microbiome.



**CHAMPION**  
Soil Conditioner

**Root Growth**

Promotes deeper, stronger root development for healthier turf.

**Stress Tolerance**

Improves turf resilience to drought, heat, and salinity.

**Soil Health**

Enhances microbial activity, boosting soil structure and fertility.



**UKELP**  
Atlantic Kelp Seaweed

**Structural Integrity**

Strengthens turf cell walls, improving durability and ball speed.

**Stress Resistance**

Enhances resilience to environmental stresses, ensuring denser turf growth.

**Nutrient Absorption**

Boosts calcium and silica uptake for firmer, healthier, and faster-playing turf.



**GLADIATOR**  
Mono-silicic acid with boron and calcium





## MANNA

Nature's Advanced  
Liquid Fertilizer 9:4:7

### Balanced Nutrition

NPK ratio and trace elements support comprehensive growth and health.

### Soil Structure Improvement

Humic and fulvic acids enhance soil structure and water retention.

### Microbial Diversity

Beneficial bacteria promote nutrient cycling and soil health.



## BATTALION

Microbial soil health inoculant

Battalion has five different strains of Bacillus:  $4 \times 10^{10}$  cfu/ml

### Disease Suppression

Battalion suppresses turf diseases by stimulating natural plant defenses and reducing pathogen activity.

### Root Strengthening

Promotes deeper, stronger root growth, allowing turf to withstand more foot traffic and stress.

### Nutrient Efficiency

Enhances nutrient availability by solubilizing phosphorus and fixing nitrogen, reducing the need for synthetic fertilizers.



## SUPER SURFER

Adjuvant

### Water Penetration Improvement

Reduces water surface tension, enhancing soil moisture.

### pH Buffering

Stabilizes soil pH, optimizing nutrient availability.

### Foliar Nutrient Absorption

Improves the efficiency of foliar-applied nutrients.





## INCREASED PERCOLATION

**OxyTurf:** Enhances soil respiration and water movement.

**Super Surfer:** Facilitates water penetration and spread.

**Ukelp:** Promotes root growth and soil health.

**Battalion:** Improves soil structure and porosity, enhancing water infiltration and percolation through the soil profile.



## DECREASING THATCH

**OxyTurf:** Breaks down organic matter, reducing thatch build-up.

**Ukelp:** Stimulates microbial activity for thatch decomposition.

**Battalion:** The microbial action in Battalion accelerates the breakdown of organic matter, effectively reducing thatch accumulation.



## NUTRITION

**Ukelp:** Supplies essential nutrients and growth stimulants.

**Champion:** Provides a balanced nutrient profile for turf health.

**Manna:** Offers a complete NPK ratio and beneficial bacteria.

**Super Surfer:** Enhances nutrient absorption and distribution.

**Battalion:** Battalion's bacteria solubilize essential nutrients, making them more readily available to the turf for sustained growth.



## ROOT VOLUME & LENGTH

**OxyTurf:** Enhances aerobic microbial activity and particle dissemination, creating pathways for root growth.

**Ukelp:** Promotes root development through phytohormone activation and stress mitigation.

**Champion:** Improves chelated nutrient uptake and stimulates roots with amino acids and polysaccharides.

**Manna:** Supplies balanced nutrients, supporting extensive root system expansion.

**Battalion:** Promotes robust root development by enhancing nutrient uptake and stimulating root growth through microbial activity.



## IMPROVED HEALTH

**OxyTurf:** Enhances soil and plant respiration.

**Ukelp:** Supports root growth and stress tolerance.

**Champion:** Improves plant vigor and health.

**Manna:** Provides comprehensive nutrients for turf health.

**Super Surfer:** Optimizes water and nutrient spread.

**Gladiator:** Improves structural integrity and resistance.

**Battalion:** Strengthens root systems and boosts overall turf resilience, leading to improved plant health and stress tolerance.



## STRESS RELIEF

**OxyTurf:** Optimizes oxygen release and microbial activity.

**Ukelp:** Enhances stress tolerance through hormone regulation and robust root development.

**Champion:** Supports enzymatic activities and nutrient absorption.

**Manna:** Manna's balanced NPK ratio and essential micronutrients enhance overall plant vitality, aiding stress resilience.

**Gladiator:** Mono-silicic acid fortifies cell walls, significantly improving turf resilience against abiotic and biotic stressors.

**Battalion:** Helps turf recover from stress by improving root health and enhancing the plant's natural defense mechanisms against environmental stressors.



## IMPROVED COLOUR

**OxyTurf:** Promotes overall turf health and colour.

**Champion:** Enriches turf colour through protein hydrolysate and fulvic acid.

**Manna:** Provides balanced nutrition for vibrant turf colour.

**Battalion:** By enhancing nutrient uptake and reducing disease pressure, Battalion supports vibrant, healthy turf colour.



## DISEASE SUPPRESSION

**OxyTurf:** Boosts aerobic microbial biomass and soil health.

**Ukelp:** Enhances plant immune response and stress tolerance.

**Gladiator:** Strengthens cell walls, making plants more resistant to diseases.

**Battalion:** Battalion's beneficial bacteria suppress soil-borne pathogens, reducing disease incidence and promoting healthier turf.

**Champion:** Activates systemic resistance in plants through regulating plant defense mechanisms and promoting beneficial microbial activity.



# WHAT IS OXYTURF?

OxyTurf offers an innovative approach to boosting sports turf performance by enhancing soil aeration, nutrient uptake, and turf health. This advanced solution optimizes soil structure, water percolation, and microbial activity, leveraging oxygen release to revitalize and enrich soil and turf health and performance. OxyTurf leverages the natural power of oxygen release to rejuvenate and enrich soil, making it more fertile and productive.

## BENEFITS

- **Enhanced Soil Aeration:** Promotes optimal oxygen levels in soil for vigorous root development.
- **Improved Water Percolation:** Facilitates efficient water infiltration, reducing surface waterlogging.
- **Organic Breakdown:** Accelerates organic matter breakdown, mitigating thatch build-up for healthier turf.
- **Compaction Relief:** Alleviates soil compaction, enhancing porosity and root penetration.

## MODE OF ACTION

- **Oxygen Release:** Stabilized oxygen formulation increases soil oxygenation, stimulating aerobic microbial activity.
- **Organic Decomposition:** Catalyzes the breakdown of organic matter, improving nutrient availability and soil structure.
- **Enzymatic Activation:** Invokes peroxidase enzymes, facilitating the conversion of organic compounds, enhancing soil fertility.
- **Microbial Stimulation:** Encourages beneficial microbial growth, vital for nutrient cycling and root health.

## ENVIRONMENTAL IMPACT

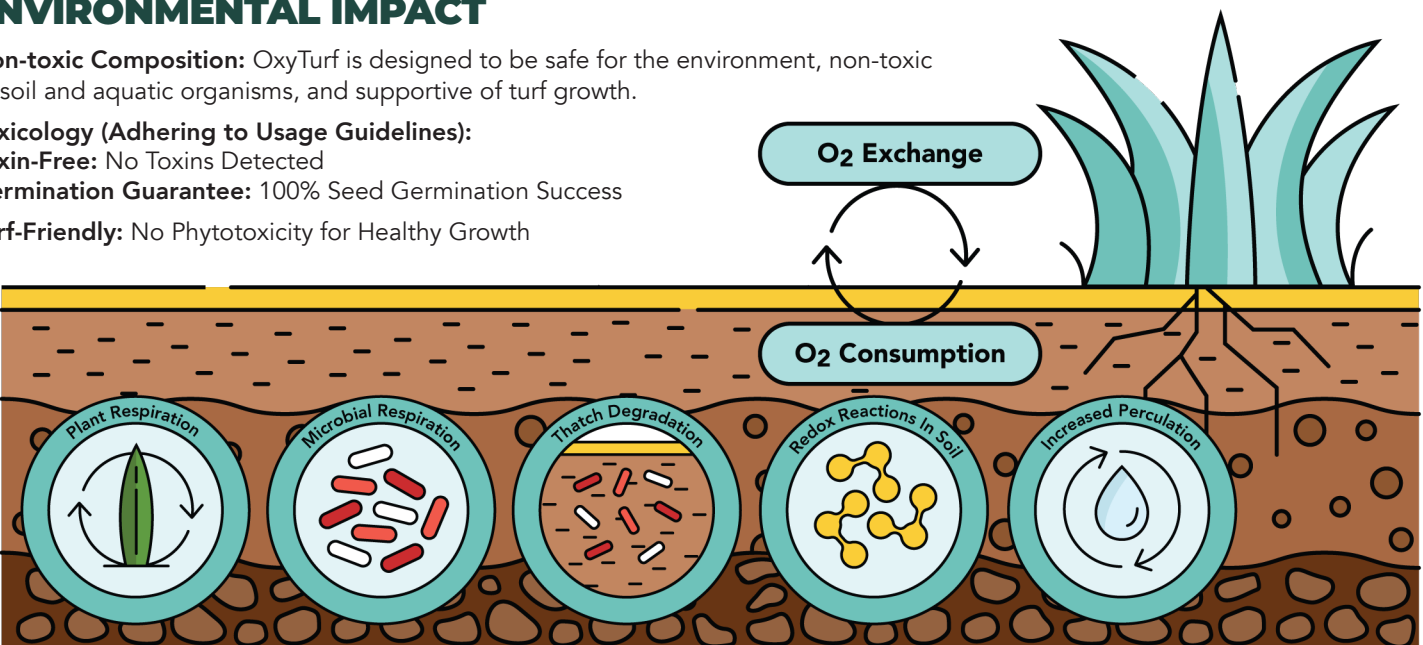
**Non-toxic Composition:** OxyTurf is designed to be safe for the environment, non-toxic to soil and aquatic organisms, and supportive of turf growth.

**Toxicology (Adhering to Usage Guidelines):**

**Toxin-Free:** No Toxins Detected

**Germination Guarantee:** 100% Seed Germination Success

**Turf-Friendly:** No Phytotoxicity for Healthy Growth



**COLOUR & APPEARANCE:**

Cloudy clear.

## APPLICATION RATE & INSTRUCTIONS

10 - 20ℓ per Ha

**Soil Drenching:** Apply OxyTurf at a rate of 10 to 20 liters / hectare once per month using soil drenching techniques. This helps improve soil aeration, percolation, and thatch degradation, leading to healthier, more resilient turf.

**Foliar Spray:** Apply OxyTurf at a 5% concentration as a foliar spray to enhance systemic acquired resistance and support overall turf health. This method helps in reducing disease pressure and improving turf vigor.

## COMPATIBILITY

OxyTurf can be used safely in conjunction with all products that do not disrupt beneficial biological interactions within the soil and turf ecosystem.

Product of Makro Organics **makro organics**



# CHAMPION

Soil Conditioner

## WHAT IS CHAMPION?

Champion serves the sports turf sector as a nutrient-rich protein cocktail, specifically designed to enhance turf vitality, colour, quality, and performance through organic means. Comprising 55% protein hydrolysate, 21% fulvic acid, 21% Ukelp, flavonoids from Genesis C4L Technology, and citric acid, Champion provides a comprehensive nutrient boost. It ensures a balanced supply of essential amino acids and microelements for optimal turf health.

## BENEFITS

- **Enhanced Chlorophyll Density:** Champion boosts chlorophyll production, resulting in a darker green turf with increased photosynthetic efficiency.
- **Systemic Acquired Resistance (SAR) Activation:** Specialized flavonoids that trigger SAR, priming the plant's immune response and enhancing natural disease resistance.
- **Antioxidant Defense and Stress Tolerance:** Champion's flavonoids, combined with fulvic acid, act as antioxidants that reduce oxidative damage, supporting resilience against abiotic stressors like drought and heat.
- **Optimized Nutrient Uptake and Root Health:** Fulvic acid and seaweed extract enhance nutrient availability and uptake, promoting robust root growth and improving soil-plant interactions in the rhizosphere.

## MODE OF ACTION

- **Flavonoid Activation through Genesis C4L Technology:** Genesis C4L's unique flavonoids interact with plant signalling pathways, triggering defence and growth responses at the cellular level.
- **Hormone Regulation for Growth and Resilience:** The seaweed component supports natural auxin and cytokinin balance, aiding root development and turf resilience under stress.
- **Microbial Synergy in the Rhizosphere:** Champion supports beneficial microbial populations, enhancing soil structure and nutrient cycling through increased microbial activity.
- **Stress Signaling and Defense Activation:** Bioactive compounds activate stress signalling pathways, preparing turf for abiotic challenges and maintaining consistent plant health.

### COLOUR & APPEARANCE:

Golden brown.

## APPLICATION RATE & INSTRUCTIONS

10ℓ per Ha

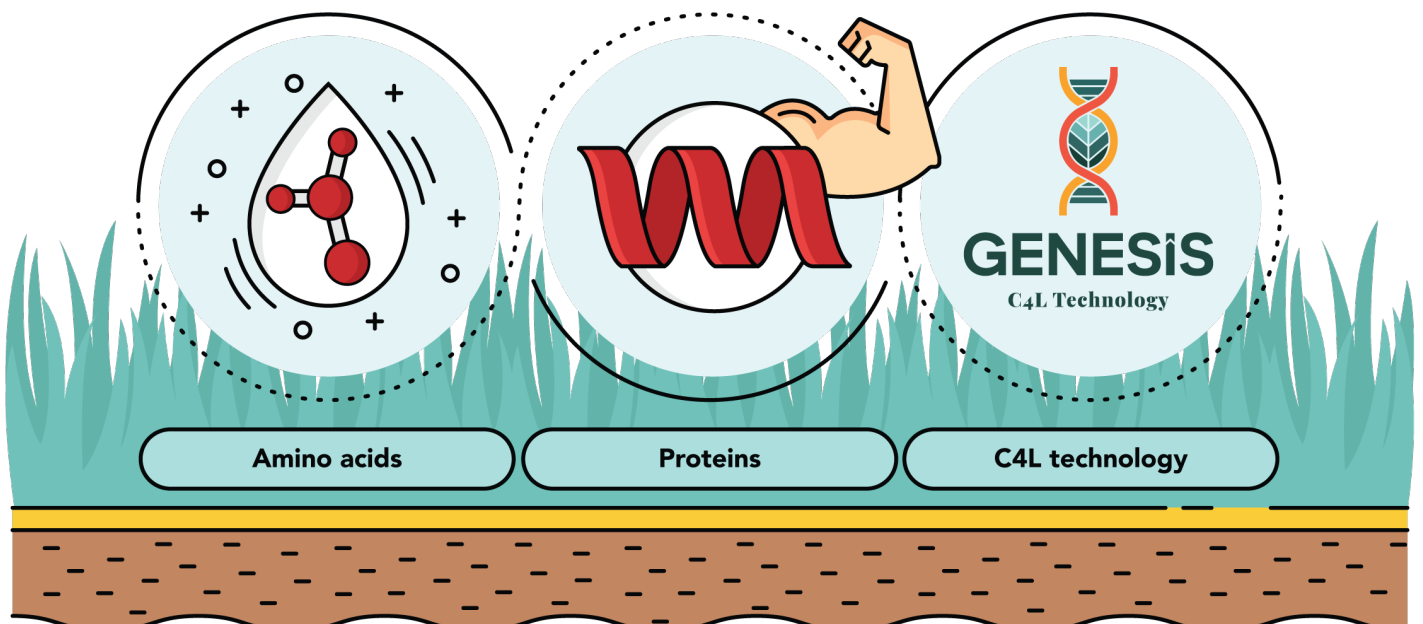
Dilute and apply 10ℓ per Ha monthly, suitable for both foliar application and soil incorporation to meet the specific needs of various grass types.

## COMPATIBILITY

Champion can be used safely in conjunction with all products that do not disrupt beneficial biological interactions within the soil and turf ecosystem.



COMPLIANCE: Approved for restricted use in organic systems in accordance with EC regulation 834/2007 and 889/2008 by Organic Farmers & Growers.



# WHAT IS UKELP?

Ukelp, a cold-pressed *Ecklonia maxima* kelp suspension, optimizes greenkeeping and groundsman productivity by enhancing turf grass performance and resilience to abiotic stress, while also improving soil health. This solution enriches grass with amino acids, polysaccharides, betaines, and sterols, essential for growth and stress management, thereby promoting robust root and sward development in diverse sports turf settings.

## BENEFITS

- **Enhances Turf Performance:** Boosts productivity through nutritional optimization, supporting healthier, more vigorous plant growth.
- **Mitigates Abiotic Stress:** Provides resilience against environmental stressors such as drought, salinity, and temperature fluctuations.
- **Improves Soil Health:** Enriches soil with organic matter, enhancing its structure and nutrient-holding capacity.
- **Promotes Sustainable Turf Management:** Supports eco-friendly practices with its natural, biodegradable composition.

## MODE OF ACTION

- **Nutrient Delivery:** Supplies essential micronutrients, amino acids, and improves growth hormone synthesis.
- **Stress Resistance:** Triggers stress resistance pathways, enhancing plant tolerance to adverse abiotic and biotic stress conditions.
- **Soil Microbial Activity:** Stimulates beneficial soil microbes, improving nutrient cycling and root development.
- **Root and Shoot Development:** Encourages vigorous root and shoot growth through natural growth promoters and hormonal activity.



Approved for use in organic systems in accordance with EC regulations 834/2007 and 889/2008 by Organic Farmers & Growers

**COLOUR & APPEARANCE:**  
Green liquid. Suspension concentrate.

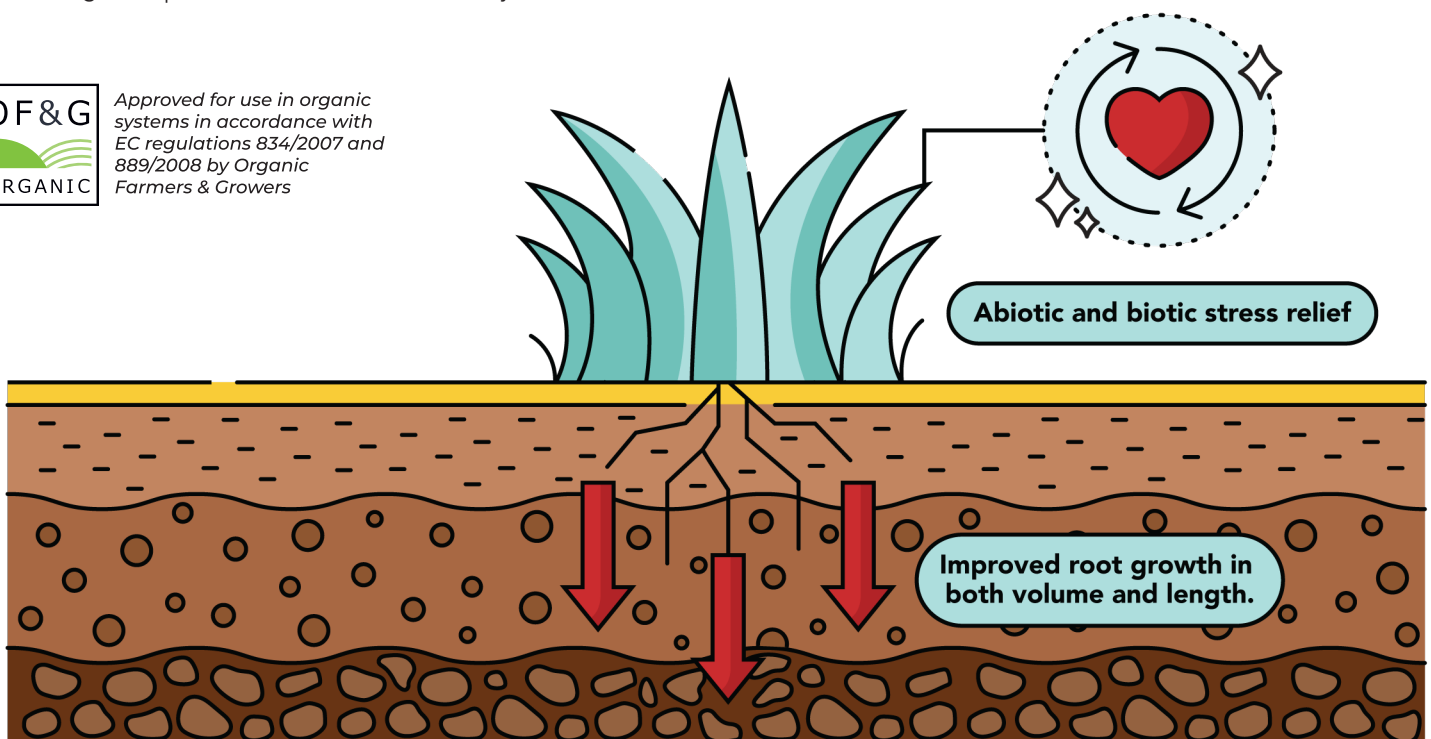
## APPLICATION RATE & INSTRUCTIONS

3 - 10ℓ per Ha

Apply 3 to 10ℓ per Ha depending on turf grass requirements. Apply as foliar spray or soil drench every 2 - 4 weeks.

## COMPATIBILITY

Ukelp can be used safely in conjunction with all products that do not disrupt beneficial biological interactions within the soil and turf ecosystem.





# GLADIATOR

Mono-silicic acid with boron and calcium

## WHAT IS GLADIATOR?

Gladiator offers unmatched support for structural turf health, optimising nutrient absorption and resilience against environmental stressors in sports turf. Featuring a unique blend of monosilicic acid, Boron, and Calcium, Gladiator is crucial for healthy sports turf development.

### BENEFITS

- **Structural Integrity and a firmer playing surface.:** Strengthens cell walls and vascular system for better water management.
- **Stress Resistance:** Enhances the impermeability of turf cell walls against fungal attacks.
- **Calcium Uptake:** Facilitates rapid absorption of calcium, improving turf health and produce firmness.
- **Nutrient Efficiency:** Increases nutrient uptake, ensuring healthier turf growth.
- **100% Bioavailable Silicon:** Provides a stable, plant-accessible form of silicon for immediate benefits.

### MODE OF ACTION

- **Nutrient Management:** Facilitates absorption and transport of essential nutrients such as Calcium, Phosphorus, Potassium, Magnesium, and others, promoting balanced turf nutrition.
- **Calcium Correction:** Rapid solution for Calcium deficiencies, fast uptake enhancing cell wall and vascular system integrity.
- **Resistance Enhancement:** Silicon deposition in the turf grass cuticle strengthens defense against fungal, bacterial, and insect attacks by bolstering the turf's natural barriers.
- **Transpiration Reduction:** Minimizes leaf epidermal transpiration, optimizing internal water management.

### COLOUR & APPEARANCE:

Clear liquid.

### APPLICATION RATE & INSTRUCTIONS

500ml per Ha

Monthly schedule and or as a pre match spray, 3 days prior to match day.

#### Dilution for Spray:

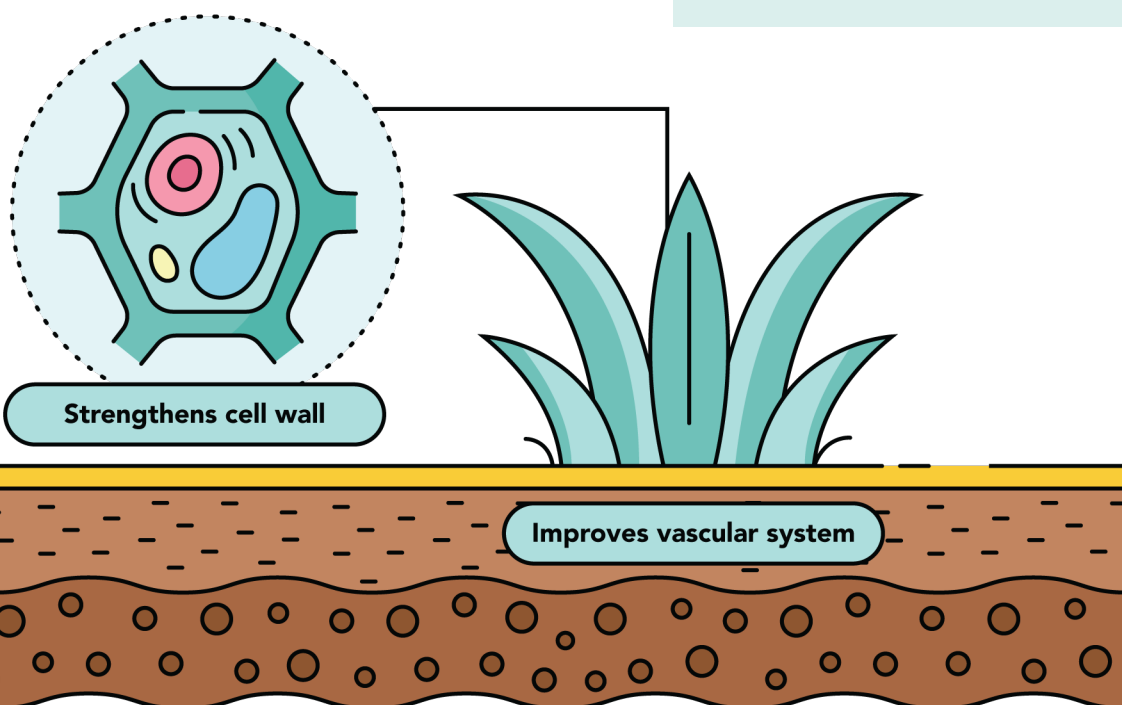
Mix in 300 - 1 000ℓ of water per Ha. Add Gladiator to water while stirring, then add other foliar products as necessary. Use within 4 hours.

#### Root application dilution:

Weekly use at 1:5 000 dilution; for every watering, dilute 1:10 000.

### COMPATIBILITY

Gladiator seamlessly integrates with conventional foliar treatment regimens.







# MANNA

Nature's Advanced  
Liquid Fertilizer 9:4:7

## WHAT IS MANNA 9:4:7?

Manna 9:4:7 is a highly effective, organic-based sportsturf liquid biostimulant. It is formulated to provide essential nutrients, enhance turf resilience, and improve soil health. The product integrates cutting-edge Genesis C4L technology and a consortium of beneficial Bacillus strains, optimized to support vigorous plant growth.

### BENEFITS

- Enhances nutrient uptake and efficiency
- Improves stress tolerance against abiotic and biotic factors
- Promotes robust root development and plant growth
- Increases yield and improves crop quality
- Improves photosynthesis and up and down gene regulation
- Enhances soil structure and microbial activity
- Reduces dependency on chemical inputs

### MODE OF ACTION

Manna 9:4:7 works through several mechanisms:

- **Nutrient Supply:** Directly provides essential macro and micronutrients.
- **Root Stimulation:** Amino acids and seaweed extracts enhance root growth and function.
- **Soil Health:** Humic and fulvic acids improve soil structure and nutrient availability.
- **Stress Resilience:** Genesis C4L technology induces systemic acquired resistance in plants, enhancing tolerance to stress and improves photosynthesis.
- **Microbial Enhancement:** Bacillus strains promote a healthy soil microbiome, aiding in nutrient cycling and disease suppression.

### CHEMICAL ANALYSIS:

|                                    |       |                       |            |                          |              |
|------------------------------------|-------|-----------------------|------------|--------------------------|--------------|
| <b>N (Total Nutriogen - DUMAS)</b> | 8.62% | <b>Na (Sodium)</b>    | 3163 mg/kg | <b>Zn (Zinc)</b>         | 1310 mg/kg   |
| <b>Fulvic Acid</b>                 | 6%    | <b>S (Sulphur)</b>    | 1.08%      | <b>B (Boron)</b>         | 515 mg/kg    |
| <b>Humate</b>                      | 13%   | <b>P (Phosphorus)</b> | 4.65%      | <b>Mo (Molybdenum)</b>   | 173.18 mg/kg |
| <b>Ca (Calcium)</b>                | 0.04% | <b>Fe (Iron)</b>      | 1024 mg/kg | <b>pH</b>                | 3.9          |
| <b>Mg (Magnesium)</b>              | 0.86% | <b>Mn (Manganese)</b> | 793 mg/kg  | <b>Calculated Carbon</b> | 23.73%       |
| <b>K (Potassium)</b>               | 6.02% | <b>Cu (Copper)</b>    | 183 mg/kg  | <b>Ash</b>               | 20.39%       |

### COLOUR & APPEARANCE:

Dark brown, homogeneous liquid.

### APPLICATION RATE & INSTRUCTIONS

General rate: 10 - 20ℓ per Ha

**Application timing:** Apply Manna bi-weekly or monthly to optimize nutrient uptake and stress resilience.

**Method:** Suitable for both foliar application and soil drenching.

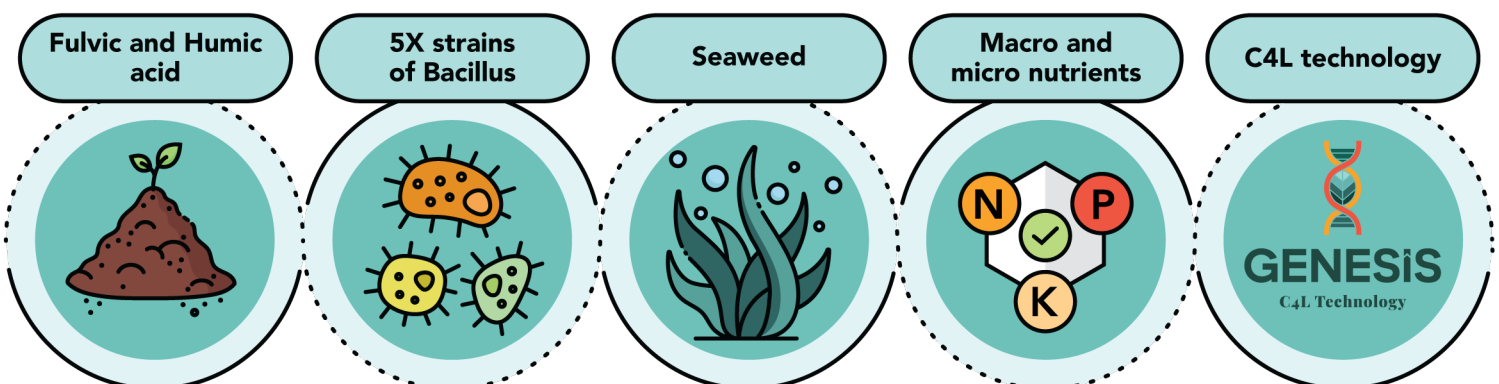
**Frequency:** Bi-weekly, monthly, or as needed based on turf requirements and environmental conditions.

### COMPATIBILITY

Manna 9:4:7 is compatible with most common sports turf amenity inputs. However, it is advisable to conduct a jar test or consult with a technical advisor when mixing with other chemical agents for the first time. Avoid mixing with highly acidic or alkaline products without prior testing.



COMPLIANCE: Approved for restricted use in organic systems in accordance with EC regulation 834/2007 and 889/2008 by Organic Farmers & Growers.



# WHAT IS BATTALION?

Battalion is a powerful microbial soil health inoculant designed for professional use in enhancing the vitality of all soil types across various grass species. Formulated with a proprietary blend of Plant Growth Promoting Rhizobacteria (PGPR), Battalion is engineered to improve plant health by stimulating natural defence mechanisms, increasing nutrient availability, and promoting robust growth. It is particularly effective in environments where disease suppression and enhanced growth are critical.

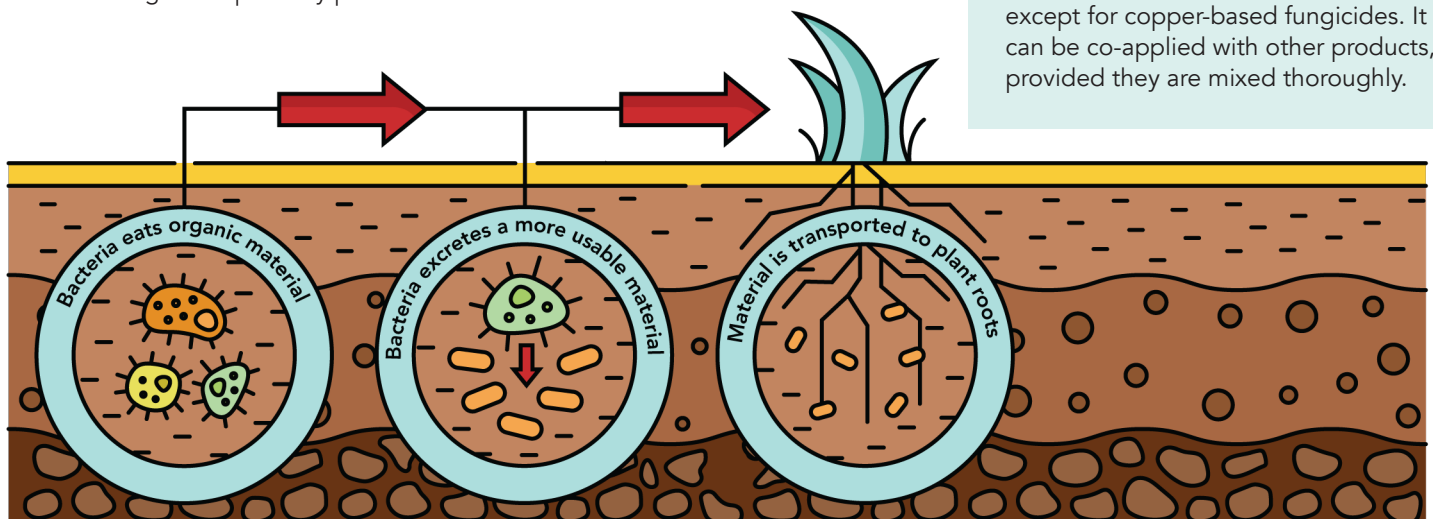
## BENEFITS

- **Enhanced Growth:** By colonizing the rhizosphere, Battalion stimulates root and plant tissue development, leading to stronger, healthier plants.
- **Disease Suppression:** The microbial content in Battalion produces biofilms and beneficial enzymes that suppress common soil pathogens, reducing disease incidence.
- **Nutrient Solubilization:** Battalion's PGPR strains solubilize phosphorus and fix nitrogen, making essential nutrients more available to plants.
- **Stress Resistance:** The biofilm produced by Battalion helps plants recover faster from stress events, such as drought or frost, by facilitating the uptake of nutrients and water.
- **Sustainable Farming:** Regular use of Battalion reduces the need for chemical fertilisers and pesticides, supporting more sustainable agricultural practices.

## MODE OF ACTION

Battalion works through several complementary mechanisms:

- **Disease Suppression:** The PGPR strains in Battalion produce salicylic acid, which triggers the plant's systemic acquired resistance (SARS) response. This leads to the production of natural antibiotics within the plant, inhibiting pathogen growth.
- **Nutrient Solubilization:** The microbes in Battalion release siderophores that bind to iron and other micronutrients, making them more available to plants. They also produce enzymes that convert insoluble phosphorus into forms that plants can readily absorb.
- **Biofilm Formation:** Battalion's microbes form a protective biofilm around the root zone, acting as a barrier against harmful pathogens while also stabilizing nutrients and enhancing their uptake by plants.



### COLOUR & APPEARANCE:

Light amber colour.

## ACTIVE INGREDIENTS:

Battalion has five different strains of *Bacillus* species:  $4 \times 10^{10}$  cfu/ml

These strains are selected for their ability to enhance plant growth and suppress soil-borne diseases.

*Bacillus amyloliquefaciens*

*Bacillus laterosporus*

Sub-species of *B. laterosporus*

*Bacillus licheniformis*

Sub-species of *B. licheniformis*

## APPLICATION RATE & INSTRUCTIONS

50 ml per Ha

Apply 50 ml per hectare as a soil drench or in-furrow application.

Battalion can be applied at any time during the growing season, depending on the turf needs.

For optimal results, repeat the application every 3-4 weeks throughout the growing season.

## COMPATIBILITY

Battalion is compatible with most liquid fertilisers and agricultural chemicals, except for copper-based fungicides. It can be co-applied with other products, provided they are mixed thoroughly.





# SUPER SURFER

Adjuvant

## WHAT IS SUPER SURFER?

Super Super revolutionises foliar application techniques in turf management, ensuring uniform nutrient delivery and optimal turf health. As a naturebased surfactant, Super Surfer enhances foliar application efficiency, offering improved coverage, nutrient absorption, and pH adjustment for optimal turf health.

### BENEFITS

Super Surfer serves to enhance the quality and wetting ability of irrigation water, vital for optimizing the effectiveness of foliar sprays. By lowering both the pH level and surface tension, it guarantees improved wettability of the foliar spray and facilitates deeper water penetration.

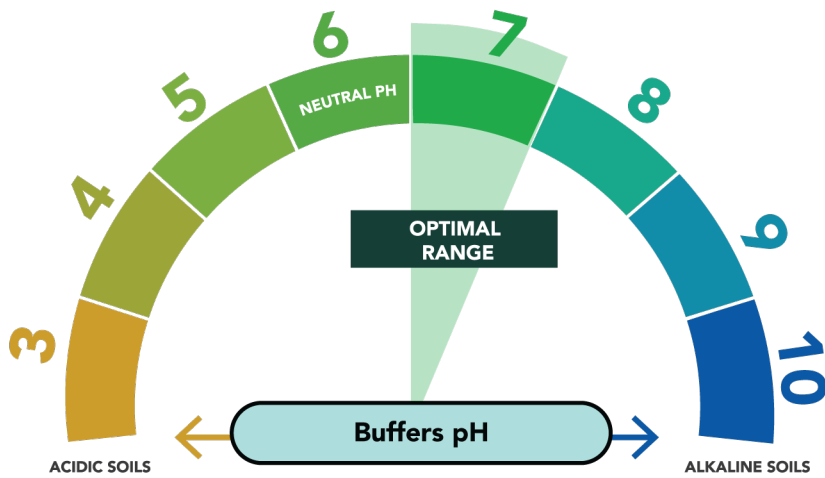
### MODE OF ACTION

**Enhanced Spread ability:** Improves spray distribution and soil water penetration, ensuring uniform application.

**pH Optimization:** Buffers spray and irrigation water to pH 5.5, enhancing foliar feed efficacy.

**Nutrient Enrichment:** Supplies vital macronutrients (N, P) for turf nourishment and growth.

**Wetting Efficiency:** Lowers surface tension for better wettability and deeper irrigation water penetration



### COLOUR & APPEARANCE:

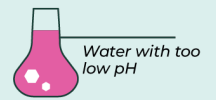
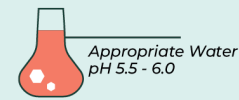
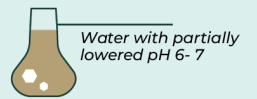
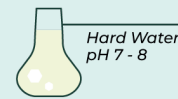
Dark red liquid.

## APPLICATION RATE & INSTRUCTIONS

80-120ml per 100l of water

For optimal results, use an average of 80-120ml of Super Surfer per 100l of water.

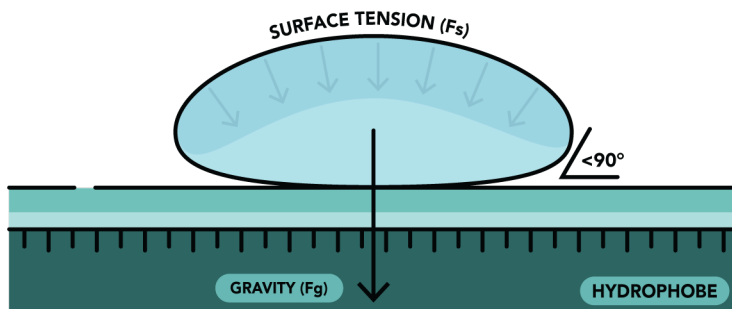
1. Fill the spray tank to **50% with water** before adding Super Surfer.
2. Observe the **change of colour** of the solution to slightly pink.
3. Depending on the hardness of the water, you should add the amount of product that will lead to the **desired pH of the water** – about 5.5.
4. To do this, follow the colour scale given at the bottom of the label.
5. If you are not able to determine the colour gradient 100ml per 100l is the average application rate.



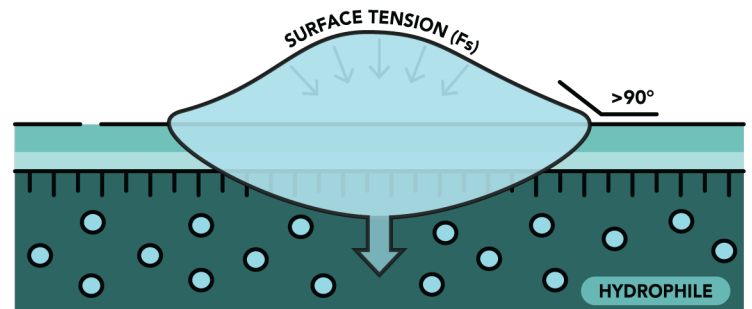
### COMPATIBILITY

Super Surfer can be also used with all foliar fertilisers and pesticides, and organic bio-stimulants.

#### Poor wetting properties



#### Good wetting properties





**ABUNDIGRO**  
nurturing soil biology

## COMPANY ADDRESS & CONTACT DETAILS

Korte Lijnbaanssteeg 1- Office 4141 | 1012SL | Amsterdam, Netherlands

t: +31644665601

e: [hello@abundigro.com](mailto:hello@abundigro.com)

## FULFILMENT CENTRE

Oogstweg 2 | 3899 BK | Zeewolde, Netherlands

