



AMENITY GUIDE | EDITION FOUR

Welcome to Advance Grass Solutions Amenity Guide. Edition Four

As a market leading provider of agronomy services, technology and customer support, AGS combines a highly qualified regional team with the latest in product innovation, to ensure our customers can meet today's challenges with knowledge and confidence.

With loyal clients from grassroots sport and bowling clubs through to Ryder Cup venues and Premier League football clubs, we can offer help and assistance to improve turf surfaces at all levels.

Our staff hold industry recognised qualifications such as BASIS and FACTS alongside honours degrees in sports turf, soil science and ecology disciplines.

In all aspects of our business we aim to deliver a personal service, share our knowledge and expertise, whilst looking to the latest products and innovations to support customers and provide long term value.

SUPPLY

Since our inception in 2017, we have established and grown exclusive partnerships with some of the leading global manufacturers, allowing us to be at the forefront of nutritional, biological, pesticidal and seed breeding technology.

We keep innovation at the heart of our work and through our experienced procurement team, select the best quality products for our loyal and ever growing customer base.

Partners

- Growth Products
- Sustane Natural fertilisers
- Douglas Biologicals
- Barenbrug
- Harrells
- Yara
- Aquatrols
- Bio Atlantis

CONSULT

Our specialist regional team provide quality, bespoke and value effective solutions for the management of all types of natural sport surfaces.

Frequently a requirement for a specific problem needs to be addressed. Our innovative and flexible approach to 21st century sports turf management will help find a solution. We have provided support to thousands of clients with durable, high quality surfaces and take our mission seriously, to provide the very best results.

All our agronomy is based on knowledge. Knowledge derived not just from years of practical and technical experience, but also gained through investing in independent trials and working closely with the leading sporting venues in the UK and Europe.

SUPPORT

We believe strongly in being a people-driven company.

Our in-field team of turf specialists are industry leading and are supported by an exceptional level of technical development and training.

They provide an extensive support package ranging from full consultancy services, soil & water analysis, weed, disease & nematode identification to structured nutrient and plant protection programmes, ensuring the highest quality surfaces are achieved and maintained.



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Disclaimer

Any information provided in this publication is given in good faith and to the best of our existing knowledge. Any advice should therefore be taken as a general guide only and not relied upon for all conditions and circumstances. We cannot accept any legal liability for information given in this guide. In any instance where there are shortages in specified products we reserve the right to substitute equivalent products.

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1. Fine Turf Fertiliser

Featured Products:

- Sustane
- Growth Products

“ Sustane stimulates the natural cycling of nutrients and carbon between soil and plant whilst reducing the need for pesticides... ”

ICON IDENTIFICATION GUIDE:



LOW SALT INDEX



ROOT ENHANCER



CARBON RICH



DISEASE SUPPRESSION



RELEASE PERIOD



SOIL HEALTH



The only natural fertilisers available worldwide, Sustâne products are built on research like no other organic. Since 1980 over 500 independent studies on Sustâne place it at the top of the most researched organic fertilisers in the world, for proven benefits on turf establishment, disease suppression, colour, quality and environmental impact trials compared to other fertiliser materials.



Why Sustâne performs with consistency:

Sustâne adds and maintains high microbial diversity index in your soils by beginning with 26-week aerobically stabilized compost. Rich in microbial species diversity, yet low in biological oxygen demand (BOD), Sustâne true aerobic compost based fertilisers enhance the “species richness diversity” (SRD) in all growing systems. The microbiology of healthy soils that is critical to all soil and plant functions in a balanced and thriving ecosystem. Sustâne compost

demonstrates a high biological diversity index of 4.5 such as a rich, active soil system. Sustâne assures low environmental impact by providing slow, efficient release of nitrogen to plant life without volatilization, leaching as nitrates or immobilization in the soil environment. Sustâne is serious about keeping our environment green. The basic resource is a renewable resource of high quality plant nutrients complexed with organic humus.

Sustâne 4.6.4

All-Natural 4% Ca 7% Humic Acid

- Most reliable and universally recognised organic pre-seed fertiliser for golf, sports pitches and landscape
- 80% Slow Release Nitrogen, 20% Organic Ammonium N and other Water Soluble Organic N
- Contains all 17 elements essential for plant photosynthesis
- Very popular in high-spec professional sports pitches to increase rooting, boost soil health and reduce disease & plant parasitic nematode issues.
- Used extensively in the UK during winter to enhance natural turf disease suppression
- Suitable for use all year round



Sustâne 5.2.4

+2% Fe Natural Based 3% Ca 7% Humic Acid

- All-purpose balanced fertiliser with 2% organically chelated iron for all turfgrass applications
- 70% Slow Release Nitrogen, 30% Water Soluble Nitrogen from Ammonium sulphate
- 2% iron sulphate organically chelated during aerobic composting process
- Contains all 17 elements essential for plant photosynthesis
- Most recognised and researched fertiliser – organic or synthetic
- Excellent tool in the prevention and recovery of turf disease - especially anthracnose in the summer months.
- Suitable for use all year round



Suståne 6.2.4 Turf Revival

+ 5% Ca + 1.5%Mg + V.A. Mycorrhizae

- UK specific formulation designed to encourage recovery and speed up the introduction of bents and fescues into an existing sward
- Added V.A. Mycorrhizae species mix specifically formulated to benefit perennial turf species over annual
- 58% Slow Release Nitrogen, 42% Water Soluble Nitrogen from Ammonium Sulphate
- Heightened calcium content to strengthen cells and encourage strong rooting
- Enough available nitrogen to aid recovery without a surge of growth to crowd out new seedlings
- Boosts soil carbon to enhance existing microbiology, improve soil health and root growth
- Excellent in cooler temperatures



Suståne 5.2.10

+ 2% Fe Natural Based 3% Ca 7% Humic Acid

- All-purpose broadcast balanced fertiliser with organically chelated iron
- 70% Slow Release Nitrogen, 30% Water Soluble Nitrogen from Ammonium sulphate
- 2% iron sulphate organically chelated during aerobic composting process
- Contains 10% potassium from natural sulphate of potash and Suståne compost for 1:2 N to K ratio
- For building root potash reserves going into winter. Strengthens plant tolerance to stress
- Ideal all year round product to support water and temperature regulation in the summer (Hi K) plus disease suppression in the autumn / winter months.
- 7% Humic Acid



Suståne 10.1.4

1% Ca, 7% Humic Acid

- High nitrogen availability for rapid spring green up of turf on cool soils
- 75% Quick Release Nitrogen, 25% slow release nitrogen for quick colour and growth in cool climates
- Made with ammonium sulphate, Suståne organic N, natural sulphate of potash
- The ammonium nitrogen source helps reduce soil pH and aid in suppression of turfgrass diseases
- Available in Greens Grade 1mm particle sizes for Greens, Tees and Tight Cut Fairways



Suståne 10.2.10

2% Fe, 1% Ca, 7% Humic Acid

- Suståne's finest 80% Slow Release Nitrogen greens grade fertiliser
- 80% Slow Release Nitrogen, 20% Water Soluble Nitrogen
- Made with methylene urea, ammonium sulphate, and two sources of organic nitrogen
- Provides quick green up on warm soils
- Long-lasting nitrogen release up to 14 weeks depending on soil temperature
- Excellent summer feed to support the plant in high stress conditions
- 7% Humic Acid



Sustane 15.3.9

+2% Fe Natural Based 5% S, 1.5% Ca, 0.5% Mg, 7% Humic Acid

- High nitrogen natural base formulation for greens and low mowed turf
- 65% Slow Release Nitrogen and 35% Quick Release Nitrogen
- Made with UMAXX®, am. sulphate, urea, Sustane organic N, natural S.O.P. and chelated iron sulphate
- Fastest, darkest green-up turf response with 8 - 12 weeks residual nitrogen release
- Very popular in stadia and training ground situations - excellent longevity.
- Effective spring base feed for golf greens without the excessive yield associated with synthetic alternatives.
- Applied at 25 to 35 grams per square metre

**Bolster Granular 4.4.4**

3% Fe, 4%Ca, 5% Humic Acid + V.A Mycorrhizae

- 80% Slow Release Nitrogen - ideal for pre-seed application
- Provides quick green up followed by six to eight weeks of even colour and growth.
- Increases the nutrient and water holding capacity of the soil, strengthening the plants tolerance to hot and dry conditions.
- Promotes greater root development via Vesicular Arbuscular Mycorrhizae
- Improves buffering against changes in soil pH.
- Increases the soil's ability to suppress plant pathogens - ideal addition to ITM programmes.
- 5% Humic Acid and 1% seaweed



Analysis	Pack Size	Rate	Longevity	NPK at 35g/m ² (Kg/ha)			Accupro Setting 35g/m ²		Spread Width
				N	P	K	Single	Double	
4.6.4	22.7kg	20-50g/m ²	4-6 weeks	14	21	14	7, R	7, N	3.6m
5.2.10	22.7kg	20-50g/m ²	4-6 weeks	17.5	7	35	7, R	7, N	3.6m
5.2.4+Fe	22.7kg	20-50g/m ²	4-6 weeks	17.5	7	14	7, R	7, N	3.6m
6.2.4	22.7kg	25-50g/m ²	4-6 weeks	21	7	14	7, R	7, N	3.6m
10.1.4	22.7kg	25-50g/m ²	4-6 weeks	35	3.5	14	7, R	7, N	3.6m
10.2.10	22.7kg	25-50g/m ²	8-12 weeks	35	7	35	7, R	7, N	3.6m
15.3.9	22.7kg	25-50g/m ²	8-12 weeks	52.5	10.5	31.5	7.5 R	7.5 N	3.7m
4.4.4	22.7kg	25-50g/m ²	8-12 weeks	14	14	14	7, R	7, N	3.6m

Usage Period

Product	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Sustane 4.6.4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sustane 5.2.10			✓	✓	✓	✓	✓	✓	✓	✓		
Sustane 5.2.4+Fe	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sustane 6.2.4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sustane 10.1.4			✓	✓	✓	✓	✓	✓	✓			
Sustane 10.2.10			✓	✓	✓	✓	✓	✓	✓			
Sustane 15.3.9			✓	✓	✓	✓	✓	✓				
Bolster 4.4.4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

A high quality, conventional fertiliser utilising micro granular technology, offering superior breakdown when compared to mini alternatives.

The Growth Products range is 100% homogeneous, ensuring even uptake and easy application. Alongside N,P,K, magnesium, iron and calcium; seaweed has been incorporated to offer an added benefit at root level.

A comprehensive range of analyses are available to suit all fine and coarse turf situations, across the seasons. The micro granules (0.5-1.5mm) breakdown within 2-3 days, minimising surface disruption.



GP Micro 10.4.4 +MgO+Fe+CaO+Seaweed

- Ideal early season product
- Ammonium nitrogen for quick uptake in cool temperatures
- 2% Iron, 4% Magnesium and 8% Calcium
- Seaweed for soil conditioning



GP Micro 8.0.4 +MgO+CaO+Seaweed

- Zero phosphate
- Available nitrogen to boost plant health against summer disease
- 2% Magnesium, 8% Calcium and Seaweed
- Iron free



GP Micro 3.0.22 +MgO+Fe+CaO+Seaweed

- Low nitrogen formulation
- Excellent post maintenance recovery tool
- High potassium to maintain levels on sand dominated profiles
- 4% Magnesium, 6% Calcium and Seaweed



Analysis	Pack Size	Rate	Longevity	NPK at 35g/m ² (Kg/ha)			Accupro Setting 35g/m ²		Spread Width
				N	P	K	Single	Double	
10.4.4	25kg	20-45g/m ²	4-6 weeks	35	14	14	6, M	6, J	3.0m
8.0.4	25kg	20-45g/m ²	4-6 weeks	28	0	14	5, N	5, K	4.0m
3.0.22	25kg	20-45g/m ²	4-6 weeks	10.5	0	77	7, R	5, K	4.0m
6.5.10	25kg	20-45g/m ²	4-6 weeks	21	17.5	35	7, R	5, K	4.0m
4.0.8	25kg	20-45g/m ²	4-6 weeks	14	0	28	7, R	5, K	4.0m
4.0.4+9Fe	25kg	20-45g/m ²	4-6 weeks	14	0	14	7, R	5, K	4.0m

Product	Usage Period											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10.4.4			✓	✓	✓	✓	✓	✓	✓			
8.0.4			✓	✓	✓	✓	✓	✓	✓			
3.0.22	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6.5.10	✓	✓	✓	✓					✓	✓	✓	✓
4.0.8			✓	✓	✓	✓	✓	✓	✓			
4.0.4+9Fe	✓	✓	✓	✓					✓	✓	✓	✓

Salt Index – Why It Matters

Scientific research tells us salinity has a negative effect on plant growth; the main issue being excess soluble salts affecting growth by reducing water intake – effectively causing drought symptoms. You may remember learning about osmosis back in school; water is drawn from low salt concentrations to high salt concentrations through a permeable membrane.

This is exactly what happens when you apply a high salt fertiliser. When fertiliser salts are added to soil water (as a granular) or directly to the leaf blade (as a foliar), the osmotic pressure changes so there is effectively lower concentrations of water outside the plant; this pulls water out of the plant cell into the soil water (or droplet on leaf surface) to redress the balance – plants cannot efficiently take up nutrients or water in high salinity soils and drought symptoms can be observed even with an ‘acceptable’ moisture content.

Applying a foliar fertiliser with a high salt index can ‘burn’ the leaf. This can be a noticeable yellowing/ browning of grass leaves in bad cases, or the damage may not always be visible to the naked eye but reduced plant health, vigour and growth may

result from applying a high salt foliar. Water will be drawn out of the plant cell leading to a loss of turgor pressure and reduced plant cell health. There may be no visible damage, but the plant will not be responding efficiently to your fertiliser inputs.

It makes sense then, to be aware of how much salt you are adding to your turf via the products you use and to utilise products that are going to maximise turf health and minimise issues caused by leaf burn and soil salinity. Why apply excess salt when there are low salt alternatives available? Salt build up not only causes issues with plant phytotoxicity and drought symptoms, but also adversely affects soil biology. Good work using organic products and biostimulants may be undone using high salt fertilisers.

All fertilisers will have a salt index based on the amount of salt within them. Once you start to get over a salt index of 40-50 there is potential for negative effects on plant health and above a salt index of 80 is where there is a high potential for plant tissue damage. The salt indices of various common nutrient sources are shown in table 1.



Nutrient Sources:	Salt Index
Urea 46% N	74
Ammonium Sulphate	88
Ammonium Nitrate	104
Growth Products Smart Nitrogen™	4
Potassium Sources:	Salt Index
Potassium Sulphate	43
Potassium Nitrate	70
Potassium Chloride	116
Growth Products Potassium Carbonate	5

Table 1. Some common nutrient sources in turf management and their salt index

The Turf Hub PODCAST

The Turf Hub Podcast

AGS' Turf Hub Podcast takes a deeper look into the key people within this wonderful industry. Tapping into their knowledge, the latest technologies, progression and stresses that are faced as turf managers, while adding a human element and insight into the people behind what everyone sees on TV.

The passion, the stories, the work ethic, the laughs and the tears; gaining and spreading positivity throughout the industry and beyond.

The Turf Hub Blog

AGS' Turf Hub Blog takes a look into hot topics effecting the industry.

Technical and educational pieces expertly put together to help understand and negotiate the ever changing world we live in.



To read AGS blog scan the QR code above

In the face of rapidly evolving challenges brought on by climate change and stringent government legislation, AGS proudly introduces its trailblazing trial site. This innovative addition serves as a critical resource in our quest to remain at the cutting edge of the sports turf management industry. At this site, we are dedicated to meticulously testing and evaluating both our current market offerings and the exciting new products in development for the UK market. This initiative is not just about maintaining our leading position; it's about shaping a sustainable future for turfgrass management.

Capabilities and Benefits

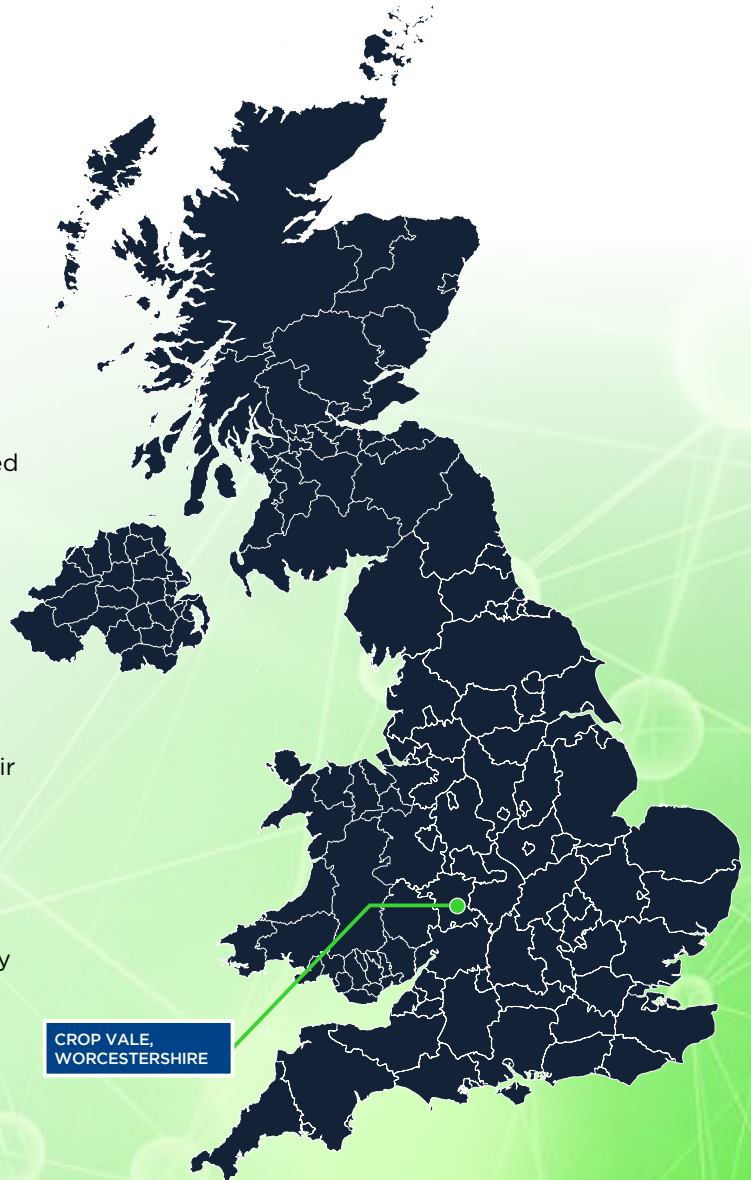
The AGS trial site stands as a beacon of education and training for our partners and customers. Here, we are equipped to offer comprehensive insights into sustainable turfgrass management practices, a necessity in today's environmentally conscious world. Our commitment extends beyond traditional methods; we employ cutting-edge technologies to understand and tackle the myriad challenges facing our industry. This facility isn't just a test bed for products; it's a hub for innovation and knowledge-sharing, guiding us all towards a sustainable and informed decisions future.

Ongoing Trials and Research

Our current research at the trial site is diverse and comprehensive, ranging from disease prevention strategies and biostimulant trials to fertiliser efficacy, summer stress prevention, and dew dispersant trials. Spanning 500m², the site is meticulously divided to cater to both football and golf turf needs, with 250m² dedicated to each. The soil profile is expertly crafted to mimic native conditions, and the grass species selected for the golf area include *Poa annua* and browntop bentgrass, while the football area boasts a robust perennial ryegrass sward. This strategic setup enables us to generate reliable, data-driven agronomic decisions, ensuring only the best, thoroughly researched products make it into our range and, ultimately, to you, the customer.

Impact and Opportunities

The AGS trial site is more than just a research facility; it's a testament to our commitment to environmental sustainability and a beacon for industry-wide change. By investing in this project, suppliers showcase their dedication to creating greener spaces and position their brands at the forefront of sustainable development in the amenity industry. The visibility and significance of our trial projects offer unparalleled opportunities for brand recognition and enhance the corporate social responsibility profiles of our collaborators. It's a unique platform where quality, resilience, and market suitability are not just claimed but demonstrated in real-world conditions, paving the way for a greener, more sustainable future in turfgrass management





2. Outfield Fertiliser

Featured Products:

- Polyon
- Sustane
- Root Start Plus™
- Advance

“If your goal is safe, durable and beautifully playable turf – season in and season out – no fertiliser feeds your success like POLYON®...”

ICON IDENTIFICATION GUIDE:



LOW SALT INDEX



ROOT ENHANCER



CARBON RICH



DISEASE SUPPRESSION



RELEASE PERIOD



SOIL HEALTH



POLYON® controlled-release fertilisers, with their trademarked green colour, give turf professionals all the things they want from a fertility programme: consistent, predictable feeding that lasts for months with one application—all to help you grow healthy and beautiful turf. Even better is the fact that you'll save money along the way due to its enhanced performance.

Think Green™

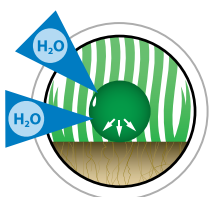
Green Means... Best Technology

POLYON® controlled-release fertilisers encapsulate nutrients within a patented polyurethane membrane, feeding the root zone slowly, constantly, daily, for months at a time. The key is the “Reactive Layers Coating” that releases out nutrients via diffusion. The results are astounding: beautiful turf, fewer applications, and no excessive growth, even after irrigation or rainfall.

Green Means... Efficient

Independent research shows POLYON® fertiliser maximizes nutrient-use efficiency. POLYON® fertilisers are engineered to provide 100% controlled-release nutrients with virtually no nutrient lock-off. Numerous university studies measuring leaching and volatilization verify POLYON® fertiliser minimizes nitrogen loss compared with other fertilisers.

POLYON® fertiliser can be applied in advance of plant demand because cool soil temperatures of early spring will slow nitrogen release.



Within a week of application, the polymer coating allows soil moisture in, which activates encapsulated nutrients but doesn't release them.

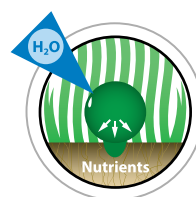
Less nitrogen is released to the soil from which it can be lost. As soils warm, plant growth and nutrient demand increase. Warmer temperatures also increase nitrogen release from POLYON® fertiliser to keep pace with plant needs.

Advanced Technology. Dependable Results

The key to the consistent, gradual release of POLYON® fertiliser is all in the exclusive, polymer membrane that coats each granule.

Green Means... Quality

In addition to its consistent, predictable, long-lasting release, POLYON® fertilisers give you the assurance of quality, because every batch is carefully blended and thoroughly tested. You also get the complete field and technical support of AGS's well qualified staff — it's another way we help make your job easier.



Over the next several months, the membrane slowly releases dissolved nutrients through diffusion, only when triggered by soil temperature.

Think Green™



What Can GREEN Do For You?

It's an easy choice when you consider the many advantages and benefits of POLYON® fertilisers:

- Efficient fertiliser lowers potential for nitrogen leaching or volatilization
- Fewer applications and no surge of growth, saving you labour and money
- Consistent, predictable, dependable feeding
- Safe, dust-free handling thanks to complete, durable coating
- Greener, healthier turfgrass for the ultimate playing surface or lawn

20.5.8 +MgO+Ca



- 3-4 month longevity
- Fast start nitrogen portion
- 65% controlled release nitrogen
- Spring and summer formulation
- Available in 1-2 & 2-3mm prill

12.0.25 +MgO+Ca



- 3-4 month longevity
- Autumn / Winter formulation
- High potassium
- Available in 1-2 & 2-3mm prill

24.5.8 +MgO+Ca



- 6-7 month longevity
- Spring and summer formulation
- 75% controlled release nitrogen
- Available in 1-2 & 2-3mm prill

15.0.30 +MgO+Ca



- 6-7 month longevity
- Autumn / Winter formulation
- High potassium
- Available in 1-2 & 2-3mm prill

30.0.5 +4% MgO



- 4-5 month longevity
- High N, formulation ideal for sports pitches and tees
- 60% controlled release with high Mg for excellent colour
- 2-3mm prill

18.0.8 +4% MgO



- 4-5 month longevity
- Well balanced N:K summer feed
- 60% controlled release nitrogen
- 2-3mm prill

15.0.10 +MgO +Fe



- 4-5 month longevity
- Balanced N:K feed
- Added Magnesium & Iron for colour
- 50% controlled release nitrogen
- 2-3 mm prill

28.0.0 +MgO +CaO



- 4-5 month longevity
- High N with added Calcium and Magnesium
- 60% controlled release nitrogen
- Excellent summer base feed
- Fast start nitrogen portion
- 2-3 mm prill



Analysis	Pack Size	Rate	Longevity	NPK at 35g/m ² (Kg/ha)			Accupro Setting 35g/m ² (1-2mm prill)		Spread Width
				N	P	K	Single	Double	
20.5.8	25kg	25-40g/m ²	3-4 months	70	7.5	28	5, Q	5, M	4.0m
12.0.25	25kg	20-45g/m ²	3-4 months	42	0	87.5	5, Q	5, M	4.0m
24.5.8	25kg	20-45g/m ²	6-7 months	84	17.5	28	5, Q	5, M	4.0m
15.0.30	25kg	20-45g/m ²	6-7 months	52.5	0	105	5, Q	5, M	4.0m
30.0.5	25kg	20-45g/m ²	4-5 months	105	0	17.5	4, T ¹ / ₂	4, O	4.9m
18.0.8	25kg	20-45g/m ²	4-5 months	45	0	28	4, T ¹ / ₂	4, O	4.9m
15.0.10	25kg	25-40g/m ²	4-5 months	52.5	0	35	4, T ¹ / ₂	4, O	4.9m
28.0.0	25kg	25-40g/m ²	4-5 months	98	0	0	4, T ¹ / ₂	4, O	4.9m

Usage Period												
Product	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
20.5.8			✓	✓	✓	✓	✓	✓	✓			
12.0.25	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓
24.5.8			✓	✓	✓	✓	✓	✓	✓			
15.0.30	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓
30.0.5			✓	✓	✓	✓	✓	✓	✓			
18.0.8	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
15.0.10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
28.0.0			✓	✓	✓	✓	✓	✓	✓			

POLYON® POLYMER COATING ENVIRONMENTAL IMPACT

Summary. The degradation of the polymer coating material of POLYON® coated fertilisers applied to turfgrass/soils is caused by microbial, chemical, and mechanical mechanisms. Laboratory tests in 1992-93, and recent research of relevant scientific literature and other sources demonstrate that the polymers in POLYON's class, polyester polyurethane, can be degraded by bacteria and fungi. The eventual products of the degradation process are understood to be water, carbon dioxide and ammonia. Neither the POLYON® coated fertiliser particles, nor the empty polymer "shells" remaining on the surface following complete release of the fertiliser present a risk to grazing animals, birds, or fish.

In the production of controlled-release POLYON® coated fertilisers, the unique polyurethane polymer coating is formed in situ in the fertiliser coating process, which is we refer to as RLC (reactive layers coating).

Degradation Mechanism. There is no detectable degradation of the polymer coating in the initial months following the application of POLYON® fertiliser to the soil. Degradation essentially does not occur during the time the fertiliser is diffusing by concentration gradient through the nonporous, semipermeable polymer membrane coating encapsulating the urea granule, or other fertiliser granule. The empty polymer shells initially would be incorporated as aggregate into the shallow soil matrix prior to degradation. At first the rate of degradation is slow. Then, as polymer molecules are split in the degradation process to form new, shorter chain molecular structures, or oligomers, degradation of these remaining coating molecules accelerates, since more molecular chain termini are exposed to microbial and abiotic attack. Any nondegraded polymer coating becomes incorporated as aggregate in the soil profile, where eventually it is broken down by microbial, chemical, and mechanical mechanisms. After several years, the coating fragments will be degraded and/or indistinguishable from the soil matrix.

Scientific Studies. The environmental fate of the POLYON® polymer coating material, or the polymer "shell", was studied extensively during the two-year period, 1992-1993. Laboratory tests were conducted by ABC Labs, Inc., Columbia, MO, under the auspices of Environmental & Turf services, Inc., (ETS), Wheaton, MD. ETS also conducted an exhaustive search of the scientific literature on the subject and interviewed scientists in the field or related fields, focusing on the mobility and persistence of the polyurethane coating material, principally is an MDI reacted polyester-polyol urethane.

Laboratory studies conducted by ABC Labs, Inc. that were relevant to the polymer mobility in the environment, included water solubility, octanol/water partition coefficient and vapor pressure; and those which were relevant to the polymer persistence in the soil, included hydrolysis and ultraviolet and visible light absorption. The mobility tests demonstrated extremely low water and octanol solubility of the polymer and a nonexistent vapor pressure. Therefore, leaching, runoff or volatilization of the polymer coating material is highly unlikely. The persistence tests suggest a hydrolysis half-life ($t_{1/2}$) of many years and a possibility of photodegradation in the presence of UV light, but even this is unlikely due to shading by the vegetative canopy and the strong absorbance of UV light by the pigment in the product.

Literature Studies. Laboratory and landfill studies on MDI polyurethanes indicate half-lives more than one year. These studies propose that some degradation may occur in the first few months following application. Scientific literature suggests that polyester polyurethanes, POLYON® controlled release polymer coating, will degrade faster than a polyether polyurethane.

The intentional ingestion by grazing animals, birds, or aquatic animals of POLYON® coated fertiliser, or polymer "shells" has been observed to be de minimus. Animals are well-equipped to deal with unintentional or occasional ingestion of soil aggregate materials, including fragments of POLYON® polymer "shells". Such materials can be crushed in birds' gizzards and excreted or regurgitated, rejected by mouths or gills of fish, digested harmlessly in the strong stomach acids of carnivores, or in the long gut of detritivores or herbivores.

Research conducted by Stuart Cohen, Ph. D; President and CEO Environmental & Turf Services, Wheaton, MD. Findings reported February 22, 1994 and October 2022.



Sustâne 18.1.8

+1% Fe 8% S and 1% Ca 4% Humic Acid

- Sustâne’s highest nitrogen natural base formulation for Tees, Fairways and Sports Pitches
- 85% Slow Release Nitrogen and 15% Quick Release Nitrogen
- Made with Sustâne organic compost, methylene urea, Polymer Coated Sulphur Urea (PCSCU), ammonium sulphate, potassium sulphate, chelated ferrous sulphate and other organic nitrogen sources.
- Two part blend with five-way release of nitrogen for fairways, roughs, lawns and sports fields
- Highest quality coverage of any organic based fertiliser
- Longest lasting slow release nitrogen fertiliser made by Sustâne with 12 - 16 weeks release rate
- Available only in 2-4 mm particle size for Tees, Fairways, and sports pitches
- Applied at 25-40 grams per square metre. Feeds all season long in cool climates



Root Start Plus 13.1.2



A biostimulant-based fertiliser combining a balanced N:K package with organic nitrogen and elevated levels of amino, humic & fulvic acids.

Proven to assist with the grow-in of all new surfaces giving enhanced root and shoot growth, leading to quicker establishment.

The natural sugar base will feed both new seedlings and soil microbiology.

- 25% Fulvic acid content.
- 11.5% Amino acid package.
- Derived from natural molasses carbohydrates and plant extracts offering both plant nutrition and biostimulant properties.
- 50% immediately available nitrogen to give an instant effect.
- 2 - 4 mm granules.
- Supplied with a full package of 9 species of Mycorrhizae, Trichoderma and Bacillus spp.
- Used extensively in pitch renovation - perfect pre-seed partner with Sustane 4.6.4



Analysis	Pack Size	Rate	Longevity
18.1.8	22.7kg	30-50g/m ²	12-16 weeks

Analysis	Pack Size	Rate	Longevity
13.1.2	20kg	35-50g/m ²	12-16 weeks

NPK at 35g/m ² (Kg/ha)			Accupro Setting 35g/m ²		
N	P	K	Single	Double	Spread Width
63	3.5	28	Cone 5, U	Cone 5, P	3.0m

NPK Level Applied for 50g/m ²			Accupro Setting 50g/m ²		
N	P	K	Single	Double	Spread Width
45.5	3.5	7	Cone 4, N	Cone 4, S	3.0m

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Sustane 18.1.8			✓	✓	✓	✓	✓	✓	✓			

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
RSP Bio 13.1.2			✓	✓	✓	✓	✓	✓	✓			

Sportsmaster Renovator Pro

MAPP No: 16803 Contains 14% nitrogen, 5% potassium + 6% iron + MCPA + Mecoprop-P

Sportsmaster Renovator Pro is a weed, feed and moss control product from ICL that is ideal for doing three jobs in one easy application.



An NPK mini-granular formulation, Renovator Pro also contains two selective herbicide actives, MCPA and Mecoprop-P, to control broadleaved weeds (such as creeping buttercup, daisies and white clover) during the spring and summer.

Renovator Pro contains the ideal balance of NPK to strengthen turf. The high levels of potassium encourage turf growth and improved root development.

- Does three jobs in one simple and easy application.
- Contains two selective herbicides to control broadleaved weeds.
- High iron content to deter moss.
- Mini-granule formulation.
- Ideal for use in the spring and summer.



Growth Products 15.0.0 SR MAG



All-new Growth Products 15.0.0 SR Mag is a high-quality, conventional fertiliser that utilises the latest mini-granular technology. The homogenous mini prill contains four different nitrogen sources for a uniform nutrient release over 6-10 weeks.



5% Magnesium and 3% Calcium offer excellent plant health and colour without soft, lush growth. Also includes zeolite to aid nutrient retention and availability.

- Mini granules (1 – 2.5mm) break down within a few days, minimising surface disruption and pick-up.
- Nitrogen from Methylene Urea for slow release.
- Also contains N from Ammonia, Nitrate and Urea for consistent, phased release.
- Zero iron formulation.
- Suitable for football/rugby pitches, cricket pitches, golf surrounds, tees, fairways and private lawns.



Analysis	Pack Size	Rate
14.0.5 +6%Fe	25kg	35g/m ²

Analysis	Pack Size	Rate
15.0.0 SR Mag	25kg	25-35g/m ²

NPK Level Applied for 35g/m ²			Accupro Setting 35g/m ²		
N	P	K	Single	Double	Spread Width
49	0	17.5	Cone 4, P½	Cone 4, L½	3.7m

NPK Level Applied for 35g/m ²			Accupro Setting 35g/m ²	
N	P	K	Single	Double
52.5	0	0	4, O½	4, L

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Renovator Pro					✓	✓	✓	✓	✓	✓	✓	

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
15.0.0 SR Mag			✓	✓	✓	✓	✓	✓	✓	✓	✓	



Built on their strong heritage as a founder and pioneering company in the mineral fertiliser industry and since 1982 marketed in the UK with the well-known and trusted Viking Ship branding, Yara is a Norwegian based company which converts energy, natural minerals and nitrogen into the full range of nutrition products and a wide range of industrial applications.

Today, Yara retains its global position as a leading provider of nitrogen based mineral fertilisers and industrial products. The company is the global leader in ammonia, nitrates and specialty fertilisers.

With continuous operations in more than 50 countries and sales in 150 countries, Yara enjoys a unique position in the world's fertiliser and industrial market.

Together with world-scale plants manufacturing mineral fertilisers Yara's activities today range from phosphate mining and ammonia/urea production, and highly specialized agricultural, horticultural and amenity products.

The production and sales are based on deep global insight and local market knowledge.

Yara Mila

2.11.18 SOP +Mg+Trace Elements

- Chloride free
- Magnesium and trace elements
- Suitable for Tees, fairways and winter pitches
- Available in 25kg and 600kg bag



Yara Krista Urea

- Water soluble Urea
- 46.0.0
- Free flowing, white prills, which dissolves easily in water
- 25kg bag



Analysis	Pack Size	Rate	Longevity
12.11.18+TE	25kg	25-35g/m ²	4-6 weeks

NPK at 35g/m ² (Kg/ha)			Accupro Setting 35g/m ²		
N	P	K	Single	Double	Spread Width
14	24.5	59.5	Cone 3, Q 3/4	Cone 3, M 1/2	3.0m

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Yara Mila			✓	✓	✓	✓	✓	✓	✓	✓		

Analysis	Pack Size	Rate	Longevity
46.0.0	25kg	25-50kg/ha	2-4 weeks

NPK at 25kg/ha (Kg/ha)		
N	P	K
11.5	0	0

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Krista Urea			✓	✓	✓	✓	✓	✓				

Yara Krista K Plus

- Water soluble potassium nitrate
- 13.0.46
- Fine, crystalline powder which dissolves rapidly
- 25kg bag



Analysis	Pack Size	Rate	Longevity
13.0.46	25kg	25-50kg/ha	2-4 weeks

NPK at 25kg/ha (Kg/ha)		
N	P	K
3.2	0	11.5

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Krista K Plus	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Yara Krista Mag

- Highly soluble magnesium to boost colour
- Directly available for plant uptake
- Tank mix with other fertilisers for a complete nutrient package
- 25kg bag



Analysis	Pack Size	Rate	Longevity
11% N + 15% MgO	25kg	25-50kg/ha	2-4 weeks

NPK at 25kg/ha (Kg/ha)		
N	P	K
2.75	0	0

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Krista Mag	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



Kristalon Lilac

20.8.8 +MgO +micronutrients

- High Nitrogen analysis
- Nitrate-N and Ammoniacal-N for fast and medium release nitrogen
- Fully chelated micronutrients
- Fast dissolving and fully water soluble



Analysis	Pack Size	Rate	Longevity
20.8.8	25kg	25-50kg/ha	2-4 weeks

NPK at 25kg/ha (Kg/ha)		
N	P	K
5	2	2

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Lilac				✓	✓	✓	✓	✓	✓			

Kristalon White

15.5.30 +MgO +micronutrients

- High potassium analysis
- Nitrate-N and Ammoniacal-N for fast and medium release nitrogen
- Very low Sulphur content
- Fast dissolving and fully water soluble
- Fully chelated micronutrients



Analysis	Pack Size	Rate	Longevity
15.5.30	25kg	25-50kg/ha	2-4 weeks

NPK at 25kg/ha (Kg/ha)		
N	P	K
3.75	1.25	7.5

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
White	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Kristalon Scarlet

7.5.12.36 +4.5MgO +micronutrients

- Low nitrogen high potassium formulation ideal for autumn/winter application
- High potassium aids turf durability
- Excellent autumn/winter feed
- Fully water soluble and fast dissolving
- Fully chelated micronutrients



Analysis	Pack Size	Rate	Longevity
7.5.12.36	25kg	25-50kg/ha	2-4 weeks

NPK at 25kg/ha (Kg/ha)		
N	P	K
1.87	3	9

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Scarlet	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



Yara Liquid Range

In Yara clear liquid solutions, the nutrients are completely dissolved in water. All the nutrients are 100% water soluble and are entirely distributed in solution offering a high quality source of nutrient for all fine and coarse turf situations.



18.9.9

- High N formulation for spring/summer application
- Sulphur free formulation, ideally suited for use in anaerobic soil conditions
- Combination of Nitrate-N for fast release and Ureic-N for medium release
- Clear solution, all nutrients are fully dissolved in solution
- Tank mixable

Analysis	Pack Size	Rate	Longevity
18.9.9	750L	50-100L/ha	3-4 weeks

NPK at 50L/ha

N	P	K
9	4.5	4.5

Usage Period

Product	J	F	M	A	M	J	J	A	S	O	N	D
18.9.9				✓	✓	✓	✓	✓	✓	✓		

12.0.12

- Balanced nitrogen and potassium formulation
- Phosphate free analysis
- Sulphur free formulation, ideally suited for use in anaerobic soil conditions
- Tank mixable

Analysis	Pack Size	Rate	Longevity
12.0.12	750L	50-100L/ha	3-4 weeks

NPK at 50L/ha

N	P	K
6	0	6

Usage Period

Product	J	F	M	A	M	J	J	A	S	O	N	D
12.0.12	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



2.7.14

- High potassium formulation aids durability and winter hardiness
- Ideally suited as autumn/winter feed
- Sulphur free formulation, ideally suited for use in anaerobic soil conditions
- Tank mixable

Analysis	Pack Size	Rate	Longevity
2.7.14	750L	50-100L/ha	3-4 weeks

NPK at 50L/ha

N	P	K
1	3.5	7

Usage Period

Product	J	F	M	A	M	J	J	A	S	O	N	D
2.7.14	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



The Growth Products Pro range is a high-quality, blended fertiliser, utilising controlled release technology.

A fast start portion derived from ammoniacal nitrogen provides an immediate response, encouraging shoot growth and the in-fill of worn areas, whilst the resin coated material releases over a 3 month period for extended feeding.

21.0.8

+MgO +Ca

- Fast start portion for immediate response
- High nitrogen formulation for spring application
- Controlled release technology providing 3 months longevity
- Magnesium for enhanced colour
- 2-3mm prill
- Suitable for use on all coarse turf situations

Analysis	Pack Size	Rate	Longevity
21.0.8	25kg	25-45g/m ²	2-3 months

NPK at 35g/m ² (Kg/ha)			Accupro Setting 35g/m ²		
N	P	K	Single	Double	Spread Width
73.5	0	28	Cone 5, Q 3/4	Cone 5, M 3/4	4.0m

Usage Period

Product	J	F	M	A	M	J	J	A	S	O	N	D
21.0.8			✓	✓	✓	✓	✓	✓	✓			

12.5.22

+MgO +Ca

- High potassium formulation
- Controlled release technology providing 3 months longevity
- Magnesium for enhanced colour
- 25% coated nitrogen
- 2-3mm prill
- Suitable for use on all coarse turf situations

Analysis	Pack Size	Rate	Longevity
12.5.22	25kg	25-45g/m ²	2-3 months

NPK at 35g/m ² (Kg/ha)			Accupro Setting 35g/m ²		
N	P	K	Single	Double	Spread Width
42	17.5	77	Cone 5, Q 3/4	Cone 5, M 3/4	4.0m

Usage Period

Product	J	F	M	A	M	J	J	A	S	O	N	D
12.5.22	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

12.12.12

+MgO +Ca

- A balanced NPK fertiliser with added calcium and magnesium
- Can be used all year round on sports pitches, tees and fairways
- Controlled release technology providing 3 months longevity
- Boost of phosphorus on newly sown sand rootzone for improved rooting and establishment
- 2-3mm prill
- 25% coated nitrogen

Analysis	Pack Size	Rate	Longevity
12.12.12	25kg	25-45g/m ²	2-3 months

NPK at 35g/m ² (Kg/ha)			Accupro Setting 35g/m ²		
N	P	K	Single	Double	Spread Width
42	42	42	Cone 5, Q 3/4	Cone 5, M 3/4	4.0m

Usage Period

Product	J	F	M	A	M	J	J	A	S	O	N	D
12.12.12	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



Advance Range

AGS offer a range of blends and liquids which can be tailored to your specific requirements. Alongside a standard NPK formulation; trace elements, seaweed and organic content can be incorporated to produce the perfect analysis for quality turf all year round.

These include:

- Granular Slow/Controlled Release Fertiliser
- Liquid Products
- Soil Amendments/Conditioners/Micronutrients
- Specialist Organic/Bacteria/Mycorrhizal Products
- Conventional Quick Release Fertiliser
- Granular available in 20kg, 25kg and 600kg bag
- Liquids available in 10, 20, 200, 1000ltr containers
- Range of straights: Ammonium Sulphate, Ferrous Sulphate, etc.

Lawn Sands and SSD's

A range of economical lawn sands are available through AGS, including microbial SSD products. We offer different analyses and iron levels for moss reduction and acidifying surfaces to promote finer grasses and discourage worms. Ammonium content gives a rapid green up.

- Traditional greenkeeping product offering economical results
- Can help discourage worm activity
- Provides environmental conditions more conducive to fine grass growth than *Poa annua*

Advance Micronutrients

A range of high quality liquid micronutrients available in 5 litre bottles for instant uptake to increase plant health and correct deficiencies.

Flexible application rates from 10-50 l/ha depending on site specific conditions. Consult with your Regional AGS representative for advice on adding micronutrients to your programme for increased turf performance.

Calcium	Organically chelated calcium for cell strength and root growth
Copper	Organically chelated. Often low in sand rootzones - important for photosynthesis
Iron + Trace Elements	Chelated iron with added Mg, Mn, Cu & B. Added Yucca for dew dispersal
Zinc	Often low in sandy soils. Chelated zinc for improved metabolic growth and health
Magnesium	6% chelated magnesium for improved colour and efficient photosynthesis
Manganese	Known to reduce Take-All Patch symptoms. Organically chelated 6% Manganese
Potassium	15% potassium solution essential for plant cell water retention and metabolism
Sulphur	Clean air has reduced sulphur levels in soil. Sulphur is essential for nitrogen uptake
Silicon	7% silicon solution to strengthen cell walls & produce an upright leaf



Advance Outfield Range

A range of conventional fertilisers suitable for fairways, sports pitches, lawns, private estates and general amenity areas in a 2-4mm prill. High quality, providing a 4-6 week longevity with extended release on heavier soils. Bulk bag available for wider application.

Pre-Seeder 6.9.6	High phosphorus pre-seeder used pre-planting to encourage root growth and fast establishment of newly seeded or turfed areas. Also very effective pre planting fertiliser for shrubs and ornamental areas.
Spring & Summer 9.7.7	Traditional all-round feed used during the growing season for all sports turf, lawns and landscaped areas.
Fairway High N 12.6.6	A higher nitrogen analysis designed to give a growth boost to fairways and sports pitches to encourage an attractive green colour and recovery from wear.
Low N 3.12.12	Ideal when leaf growth is not required but additional phosphorus and potassium are required to improve plant health and strength.
Balanced NPK 20.10.10	High nitrogen combined with good phosphorus and potassium levels to give strong growth and recovery to intensively used sports turf and amenity lawns.

Analysis	Pack Size	Rate	Longevity	Nutrient Applied at 35g/m ²		
				N	P	K
Pre Seeder 6.9.6	25 & 600kg	35-50g/m ²	4-6 weeks	21	31.5	21
Spring & Summer 9.7.7	25 & 600kg	35-50g/m ²	4-6 weeks	31.5	24.5	24.5
Fairway High N 12.6.6	25 & 600kg	35-50g/m ²	4-6 weeks	42	21	21
Low N 3.12.12	25 & 600kg	35-50g/m ²	4-6 weeks	10.5	42	42
Balanced NPK 20.10.10	25 & 600kg	35-50g/m ²	4-6 weeks	70	35	35





3. Liquid Fertiliser

Featured Products:

- The Classic
- K Builder
- Quick Response
- Pot Carb Max
- ReAct™
- Ignition™

“When it comes to knowledge about the products you’re using, Growth Products believe that more is better. That’s why we have the most comprehensive product labels in the market place today...”

ICON IDENTIFICATION GUIDE:



LOW SALT INDEX



ROOT ENHANCER



CARBON RICH



DISEASE SUPPRESSION



RELEASE PERIOD



SOIL HEALTH



Growth Products SMART Nitrogen™ liquid fertilisers

The foundation for quality sportsturf care rests in consistent and reliable nutrition. An excess flush of top growth can lead to problems such as susceptibility to disease, poor root development, annual weed grass invasion and thatch build up. These problems can be avoided by using Growth Products' technically advanced "Smart Nitrogen" products.

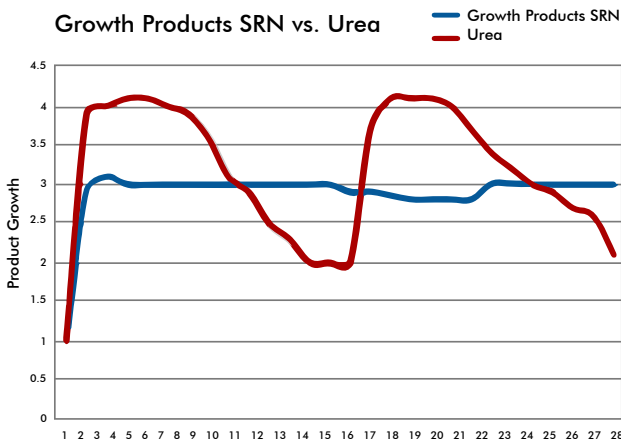
Smart Nitrogen™ is a liquid slow release nitrogen (SRN). It provides an even and consistent feed, avoiding the aforementioned issues associated with unwanted growth. The SRN in all Growth Products' fertilisers is Nitro-30, a methylene urea nitrogen.

This proprietary Smart Nitrogen™ has several unique and important properties that make a significant difference in use:

- It is highly tacky/sticky, and will not be washed away by rain or irrigation.
- Fastens to the leaf cuticle, where it is broken down and absorbed by stomatal openings.
- Dual efficiency allows it to be absorbed by both leaves and roots.
- It will not leach or volatilize, making it good for the environment and good for your budget.
- Reduces thatch build up associated with fast release nitrogen products.
- The high carbon content helps feed beneficial soil microbiology.



Growth Products SRN vs. Urea



Studies at leading universities have shown that a slow release nitrogen provides excellent agronomic response, no phytotoxicity, and a better residual release than liquid fertilisers with quick release nitrogen. The key difference between Growth Products Smart Nitrogen™ and other slow release liquids is the length of the carbon chain methylene

urea molecules.

Growth Products is typically 7-9 carbon chains compared to the usual 3-5 carbon chains. This give Growth Products the unique features and longevity that other liquid nitrogen products cannot match. Mix and match your Growth Products liquids to give you the exact response and longevity you require.

Nitrogen Sources

Raw Materials	Salt Index
Nitro-30 SRN 30-0-0	4
Granular Methylene Urea	24.6
MAP	26.7
DAP	29.2
Calcium Nitrate	65
Ammonium Sulphate	68.3
Urea	75.4
Ammonium Nitrate	116.3

Potassium Sources

Raw Materials	Salt Index
*Potassium Carbonate	4.75
Potassium Sulphate	42.6
Potassium Hydroxide	61
Potassium Thiosulphate	62
Potassium Nitrate	73.6
Potassium Chloride	116.3
*Growth Products uses Potassium Carbonate in most of its blends	

The Classic 18.0.6

Growth Products 18.0.6 with 50% Slow Release Nitrogen plus micronutrients is a professional liquid fertiliser solution made from only the highest quality N-P-K raw materials and micronutrients to assure a safe, reliable and efficient product.



18.0.6 provides a balance of quick release nitrogen for initial green up and 50% slow release nitrogen for continuous steady feeding.

18.0.6 contains methylene urea from Smart Nitrogen™, which resists leaching and provides a release over 4-12 weeks. The potassium is readily available for both foliar and root uptake.

- Provides green up without a flush of growth
- 50% slow release nitrogen from Smart Nitrogen™
- Potassium Carbonate, non-chloride source, very low on salt index
- 4-12 week longevity
- Compatible with fungicides and herbicides



Analysis	Pack Size	Rate	Longevity	Water Volume
18.0.6	10 & 200ltr	20-30ltr/ha	4-12 weeks	200-600ltr/ha

Nutrient Level Applied at 20ltrs/ha		
N	P	K
4.5	0	1.5

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
The Classic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

K Builder 7.2.21



K-Builder is powered by the most soluble and safe form of potassium available, Potassium Carbonate.



K-Builder immediately penetrates leaf tissue, quickly dispersing potassium throughout the plant, increasing drought tolerance and carbohydrates required for healthy turf, all year round.

K Builder also contains Growth Products proprietary Smart N that enhances K absorption due to its adhesive qualities on leaf and soil particles.

- Increases water and nutrient uptake
- Improves drought and disease tolerance
- Boosts plant carbohydrate production
- 50% slow release nitrogen
- Lowest salt index of any potassium
- Excellent tool in the prevention of anthracnose
- Potassium Carbonate - the highest quality source of K currently available globally
- Compatible with fungicides and herbicides



Analysis	Pack Size	Rate	Longevity	Water Volume
7.2.21	10 & 200ltr	20-30ltr/ha	4-6 weeks	200-600ltr/ha

Nutrient Level Applied at 20ltrs/ha		
N	P	K
2	0.6	6

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
K Builder	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Quick Response 20.3.3

A high quality, balanced liquid fertiliser that delivers an instant plant response when you need to provide a nutritional boost.

It can be used as a stand-alone product or tank mixed with other Growth Products liquids to provide the exact longevity you require.



Three-way mix of Nitrogen sources for enhanced plant uptake. Utilises ultra-low salt index potassium carbonate to maximize plant health benefits.

- Part ammoniacal N source for instant plant response
- 20% Smart Nitrogen™ slow-release to follow a fast initial green-up with a consistent trickle of nutrition to the plant.
- 2-10 week longevity - dependent upon application rate
- Safe to use all year round - no danger of scorch. No high salt nitrate or chloride sources.
- Compatible with fungicides and herbicides



Pot Carb Max 0.0.25

A 100% soluble potassium carbonate liquid with an ULTRA low salt index (4.75) and zero chlorides. The lowest salt index potassium source available giving rapid and efficient uptake through leaf, root and crown.



Potassium is an important nutrient for plant cell strength and drought stress tolerance.

Recent research also suggests increased potassium leaf tissue levels significantly reduces anthracnose severity. Adding Pot Carb Max to your spring/summer liquid feeding programme helps get turf through high stress summer periods healthy and disease-free.

- Zero-scorch, plant friendly, low salt index pure potassium liquid
- Adds carbon to feed soil microbiology
- Ideal in combination with TKO Phosphite, Essential Plus and Companion as early summer pre-drought stress conditioning.
- Tank mix with other Growth Products liquids to achieve the exact N-P-K you require
- Independent research shows applications in spring and early summer can reduce anthracnose



Analysis	Pack Size	Rate	Longevity	Water Volume
20.3.3	10 & 200ltr	20-30ltr/ha	4-6 weeks	200-600ltr/ha

Analysis	Pack Size	Rate	Longevity	Water Volume
0.0.25	10 & 200ltr	10-30ltr/ha	4-6 weeks	200-600ltr/ha

Nutrient Level Applied at 20ltrs/ha		
N	P	K
4.6	0.7	0.7

Nutrient Level Applied at 20ltrs/ha		
N	P	K
0	0	6.7

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Quick Response	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Pot Carb Max	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Nitro 22 | 22.0.0

A combined quick, medium and slow-release nitrogen fertiliser utilising the unique Growth Products ultra-low salt index Smart Nitrogen for extended release.



15% instantly available nitrogen gives just enough growth, with 35% slow-release long chain methylene urea to give a long term health boost.

- Contains 4% sulphur – ideal for sand-based rootzones low in S
- Mix and match with the Growth Products range for precision nutrition
- Excellent product for tank mixing with selective herbicides and PGR on sports pitches, tees and fairways
- 35% SRN from Smart Nitrogen™
- Excellent spring / summer feed for golf greens with flexible rates to suit low N regimes
- Long carbon chain nitrogen molecule breaks down slowly to feed both plant (N) and soil microbiology (C).
- ULTRA Low Salt Index with no chlorides and nitrates
- Tank mix with Ignition to achieve an initial growth boost if required.



Analysis	Pack Size	Rate	Longevity	Water Volume
22.0.0	10 & 200ltr	10 – 40l/ha	2 – 4 weeks	200-600ltr/ha

Nutrient Level Applied at 20ltrs/ha		
N	P	K
5.5	0	0

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Nitro 22			✓	✓	✓	✓	✓	✓	✓	✓	✓	

Ignition™



An AGS-exclusive liquid plant-health-solution for sports pitches, tees, fairways, lawns, outfields and fine turf including golf and bowling greens with elevated calcium and magnesium.



The special formulation of this liquid gives ultra-rapid foliar uptake of nitrogen, calcium and magnesium for an all-round turf strengthening package. Achieve an instant boost to plant growth and health all year round, including colder winter months. Calcium is known for its cell strengthening properties alongside improving nitrogen uptake and stress tolerance.

Magnesium gives good colour without lush growth and aids in plant sugar production and new leaf development. Nitrogen is delivered in a form that is instantly available for use by the plant, giving this product perfect characteristics for use throughout autumn, winter and spring.

- Boosts growth, recovery and health in stadiums and training grounds during cooler weather.
- Supports Poa growth in cold springs to encourage mixed Poa/Bent greens to grow evenly during this awkward cool period.
- Enhances winter and early spring growth of fairways, tees and outfields to improve sward density and health following high use.
- Pre-tournament green-up and health boost for greens, tees and fairways.

Analysis	Pack Size	Rate	Longevity	Water Volume
Ignition™	5 & 200ltr	10 – 20l/ha	2 – 4 weeks	200-600ltr/ha

Nutrient Level Applied at 20ltrs/ha		
N	P	K
3.2	0	0

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Ignition™	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

ReAct™



A high quality, balanced liquid fertiliser that provides an instant plant response when a nutritional boost is required. It can be used as a stand-alone product or tank mixed with bio-stimulants, fungicides and herbicides.



ReAct utilises three sources of nitrogen – Ammoniacal, nitrate and urea, delivering both instant and slow release phased nutrition. In addition, analyses contain a comprehensive micronutrient, seaweed, amino and fulvic acid pack, chelated with citric acid, for rapid uptake.

- Three way mix of Nitrogen sources for enhanced plant uptake and longevity
- Two analyses for year round feeding and flexibility
- Hi N formulation for rapid response and infill of worn areas
- Hi potassium option for summer water and temperature regulation
- Includes Iron for enhanced colour
- Excellent results when used post-renovation for quick recovery.
- Compatible with growth regulators, herbicides and fungicides.



Analysis	Pack Size	Rate	Longevity	Water Volume
28.0.0	10, 200,	20 - 30l/	4 - 6	200-600ltr/ha
15.2.10	750L	ha	weeks	

Nutrient Level Applied at 20ltrs/ha			
	N	P	K
28.0.0	6.4	0	0
15.2.10	3.4	0	0.5

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
ReAct			✓	✓	✓	✓	✓	✓	✓	✓	✓	

Advance Cal-Mag 7.0.3

Calcium and magnesium are very important secondary nutrients and part of the chlorophyll molecule which is necessary for sugar formation. Calcium helps improve nitrogen uptake, plant cell integrity, turgidity and stress tolerance. It benefits soil health by buffering pH, reducing salt build up and encouraging root development.



Magnesium is very important for colour, new leaf development and aids sugar (energy) production. Cal-Mag works as a very effective autumn/winter 'hardener' by strengthening cell walls and reducing the ability of pathogens to penetrate the leaf.

- Sulphur-free hardener for use all year round
- Magnesium provides colour without any growth flush
- Improves cell turgidity and stress tolerance
- Enhance disease suppression
- Tank mix with Xtra Iron, pH Reducer, SAR Activator & TKO phopshite for excellent disease prevention



Analysis	Pack Size	Rate	Water Volume
7.0.3	10 & 200ltr	10-30 ltrs/ha	300 - 600 ltrs/ha

Nutrient Level Applied at 20ltrs/ha		
N	P	K
1.8	0	0.8

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Cal Mag	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



4. Plant Health

Featured Products:

- Essential Plus
- TKO Phosphite
- Residue Complete
- SAR Activator
- Solunar Fe™

“By adding organic matter back into the soils that have been depleted, even the most difficult profile conditions can be improved...”

ICON IDENTIFICATION GUIDE:



LOW SALT INDEX



ROOT ENHANCER



CARBON RICH



DISEASE SUPPRESSION



RELEASE PERIOD



SOIL HEALTH

ESSENTIAL Plus 1-0-1



Essential Plus



100% Natural Organic Soil Amendment with 21 L-Amino Acids

What is Essential?

Essential is a 100% natural organic product derived from plant and vegetative extracts that provide a rich carbon source of organic matter.

Essential is pasteurized and homogenized to be a homogeneous solution. Each ingredient has been selected to provide all the various stages of organic decomposition (from fast decomposers to more complex forms of carbon requiring complex decomposition)

Essential contains 21 L-amino acids that promotes nutrient absorption, and stimulates the plants essential metabolic activities. It also becomes an available food source for soil microorganisms. High concentrates of active, soluble humic acid, humus and cellulose fibre will help to replenish soils that have been depleted of organic matter. Essential will improve poor or subsoil condition and compaction, as well as enhance plant physiology with sugars, 21 amino acids and nutrients that are not available in N-P-K fertilisers.

Food Source for Microbial Activity

Beneficial microorganisms need organic matter as a food source to survive and increase their population. Essential has a high carbon content that slowly decomposes, restoring organic matter back into the soil. This is especially important in intensely managed fine turf and sports pitches.

Enhances Plant Physiology

Turf needs more than just N-P-K fertilisers to remain healthy. Essential contains vitamins, enzymes, carbohydrates, sugars, amino acids and root stimulators (from kelp). These nutrients are absorbed and utilized by the plant to enhance growth, vitality and stress resistance.

Rejuvenates Soil Structure

Essential contains high percentages of active, soluble humates, plant extracts, cellulose fibre and a natural wetting agent which are critical to maintain healthy soil. By adding organic matter back into the soils that have been depleted, even the most difficult soil conditions can be improved. These ingredients also reduce compaction and improve cation exchange capacity.

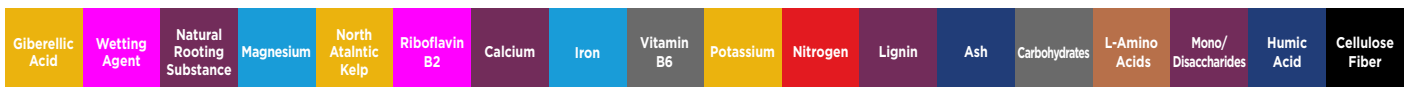
- Rejuvenates soil structure
- Food source for microbial activity
- Contains 21 natural L-Amino Acids
- Root stimulator
- Reduces salts
- High fungal food content to favour perennial species



Analysis	Pack Size	Rate	Longevity	Water Volume
1.0.1	10ltr	10ltrs/ha	600ltrs/ha	200-600ltr/ha

Usage Period

Product	J	F	M	A	M	J	J	A	S	O	N	D
Essential	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



TKO Phosphite 0.29.26

TKO Phosphite is a highly concentrated P/K nutrient solution containing mono and di-potassium salts of phosphorus acid.

The clear solution is highly soluble and is rapidly absorbed into the plant tissue. It can be taken up either through leaf tissue or roots, quickly correcting deficiencies and improving plant growth and vigour.



Phosphite nutrients are known to increase turf quality and overall plant health, especially in stress conditions. Phosphorus is second only in importance to nitrogen and is known to play a key role in photosynthesis, respiration, energy storage, enzyme and protein formation and root development.

- At 8ltrs/ha delivers 6.6kgs of phosphite
- Rapidly absorbed via leaf or roots
- Highly systemic via xylem and phloem
- Strengthens plants immune system
- Can be tank mixed with Companion and 18.0.6
- Ideal partner for preventative fungicide
- Phosphite is proven in independent UK based trials to: 'Significantly reduce incidence of Microdochium nivale when used in programme of applications.'



X-Xtra Iron 6.0.0 +9% Fe

X-Xtra Iron chelate provides 100% soluble Fe in an immediately available form for both foliar and root applications

It is formulated by a unique Iron / Nitrogen complex that converts the iron to a soluble form, which will stimulate fast green up without a flush of growth.



X-Xtra Iron contains essential nutrients for photosynthesis: Iron & Nitrogen with citric acid utilized as the chelating agent.

- 9% chelated iron and low nitrogen for fast green up
- 100% soluble for immediate plant availability
- Compatible with Plant Growth Regulators
- Can be safely tank mixed with a wide range of fertilisers and pesticides
- Suitable for all fine and coarse turf
- Ideal for leaf acidification to reduce spore germination in high disease pressure situations.
- 6% Nitrogen, rapidly absorbed with Fe.
- Key part of AGS Winter Turf Hardener package, alongside TKO, Cal Mag and SAR Activator.



Analysis	Pack Size	Rate	Longevity	Water Volume
0.29.26	4ltr & 10ltr	4-8ltrs/ha	300ltrs/ha	200-600ltr/ha

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
0.29.26	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Analysis	Pack Size	Rate	Longevity	Water Volume
6.0.0	10, 200ltr	10-20ltrs/ha	300ltrs/ha	200-600ltr/ha

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
6.0.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Growth Products Sil-Guard

A combination of potassium silicate, phosphite and humic acid, Sil-Guard is designed to enable turf managers to improve cell wall strength, plant turgidity and cleanness of cut.



Independent research show silicates can enhance wear tolerance and help suppress disease - a very useful addition to any IPM plan.

- Increased wear tolerance producing less pronounced pitch marks and quicker recovery.
- Tougher, more vertical leaf blades lead to a faster, smoother ball roll.
- Humic acid derived from leonardite will allow greater nutrient availability and increase microbial activity.
- Effective in maximising turf coverage when applied to heavily trafficked areas such as entry and walk off areas.
- Useful tool is disease prevention
- Recommended monthly to maintain green speed and allow for a higher height of cut.
- Apply on its own due to the potassium silicate content.



DP Residue® Complete

Residue® Complete is a diverse blend of naturally-occurring, nutrient-cycling microorganisms that accelerate the breakdown of organic residues; especially thatch and grass clippings.



When these are broken down faster, more of the carbon is captured and recycled to help build soils. When soil building is accelerated, nutrient uptake by plants is enhanced and soil health is improved.

That increase in soil health kickstarts growth and delivers healthier turf.

- Fast breakdown of grass clippings and thatch.
- Increases soil nutrient availability.
- Improves soil health through better biology
- Contains Phanaerochaete chrysosporium, Trichoderma reesei, Bacillus spp.
- Microbes are specifically targeted to break down lignin and cellulose as in turf thatch these are the hardest to reduce components.
- Once established in the soil, the Bacillus species included in DP Residue will produce significant quantities of further enzymes that will digest the protein in thatch and turn organic matter into beneficial humus.



Analysis	Pack Size	Rate	Water Volume
0.25	9.46ltr	9.46ltrs/ha	300-600ltr/ha

Analysis	Pack Size	Rate	Water Volume
DP Residue®	450g	225g/ha	600ltr/ha

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
GP Sil-Guard	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
DP Residue®						✓	✓	✓	✓	✓	✓	✓

L-CBF Turfgrass Enhancer™

L-CBF Turfgrass Enhancer™ is specific for use in all turf management. It combines a unique blend of nutrients (N-K-S, enzymes and inorganic and organic trace minerals) with an enriched high carbohydrate source that can be used as a soil amendment or replacement of part or all of the supplemental nitrogen.



The sugar, nitrogen, amino acids and peptides can be absorbed by the plant immediately energizing the plants and boosting the strength of the cell walls. This is important for turf growing in the shade and during the summer when plant respiration is rapid.

TGE can stimulate the growth and improve the efficiency of naturally occurring and applied microbes as a result of its carbohydrates, nitrogen and other biological growth factors. Carbohydrates are carbon, and carbon is the building block of life. In the soil, TGE helps stimulate the soil microbial population to improve nutrient uptake whilst making nutrients more available.

TGE can also increase the breakdown of clippings, whilst helping to improve soil aeration and the reduction of thatch mediated by soil microbes.

- 9-0-2 formulation for complete plant and soil feed.
- Four different forms of nitrogen for a quick response plus 3-4 week longevity.
- Stimulates soil biology aiding the thatch breakdown, releasing nutrients and reducing the overall nutrient input required.
- The sugar, nitrogen, amino acids and peptides can be absorbed by the plant immediately energizing the plants and boosting the strength of the cell walls.
- Perfect product to speed up establishment of seedlings on newly constructed football and rugby pitches.
- The carbohydrates and sulphur help improve the utilisation of urea, reducing the loss of urea from volatilisation and leaching.
- Can be tank-mixed with most other liquid fertilisers, biostimulants and fungicides.
- Improves cell turgidity and stress tolerance.
- Includes complex carbon, chelated micro-nutrients, yeasts and microbial growth factors.
- A key product in the AGS pitch renovation recommendation.
- Ideal pre-seed liquid to compliment Sustane and Root Start Plus.



Analysis	Pack Size	Rate	Water Volume
9.0.2	10, 210 & 1000L	10 - 100ltrs/ha	600ltrs/ha

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
L-CBF Turfgrass Enhancer™	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



Iron Max 15.0.0 +6% Fe



Iron Max 6% is a chelated iron product that promotes rapid green up via its high nitrogen / iron loading with additional manganese.



It is formulated by a unique Iron / Nitrogen complex that converts the iron to a soluble form, which will stimulate fast green up without excessive yield.

Iron Max contains essential nutrients for photosynthesis: Iron & Nitrogen with citric acid utilized as the chelating agent.

Can be used for regular plant maintenance to enhance rich green colour and promote strong root systems to withstand stress conditions.

- 6% chelated iron and high nitrogen for rapid green up and supplementary feed.
- 100% soluble for immediate plant availability – clear solution.
- Compatible with Plant Growth Regulators, Herbicides and Fungicides
- Additional manganese for nitrogen uptake, activation of enzymes, and to support photosynthesis.
- Ideal for leaf acidification to reduce spore germination in high disease pressure situations.
- Suitable for all fine and coarse turf



Sustane Bolster

A mix of Ascophyllum nodosum seaweed, humic acid, and soluble carbohydrates.



BOLSTER from Sustane prepares plants for stress conditions, increasing root mass and depth without a flush of top growth.

BOLSTER has demonstrated improved drought resistance, increased chlorophyll production and delayed senescence. It increases plant health and vigour to offset infection of certain diseases and to guard against effects of plant parasitic nematodes.

- Improves plant tolerance to stress
- Reduces parasitic nematode symptoms and numbers
- Accelerates chlorophyll production, improves turf colour
- Better drought tolerance and improves moisture retention
- Formulated with 5% Iron Chelate + 4% Humic Acid + 2% Seaweed Extract
- Ideal partner for growth regulators, herbicides and fungicides
- Key tool in reducing the reliance on fungicides



Analysis	Pack Size	Rate	Water Volume
15.0.0	9.46ltr	9.46ltrs/ha	300-600ltrs/ha

Analysis	Pack Size	Rate	Water Volume
Bolster	10ltr	10ltrs/ha	500 ltrs/ha

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Iron Max 15.0.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Bolster	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

SUSTANE MINI GUIDE

UNIQUE, COMPOSTED ORGANIC TECHNOLOGY

Packed full of new information, products & data from the world's most researched organic fertiliser producer plus testimonials from some of the leading turf managers in the UK.
Scan QR code below to download your copy.



Ocean Amino V



An efficient anti-stress bio-stimulant, containing a high concentration of free amino acids, enhanced with nitrogen for faster and more efficient recovery of grass after abiotic stress.



Ocean Amino V helps the grass conserve energy otherwise used for the production of L-amino acids.

It stimulates soil microbial production of organic acids, providing further support for the requirements of the turf.

- Fast and efficient recovery from stress
- Strengthens and improves recovery from adverse climatic conditions
- Formulated with organic biomolecules of a natural origin
- Essential energy saving during critical periods of growth
- Penetrates easily through the leaves and is directly usable by the plants in the synthesis process of proteins
- Quickly promotes plant growth and development at any stage of the cycle
- 24% Amino Acids
- Ideal partner for surfactants in summer stress management.



Analysis	Pack Size	Rate	Water Volume
9.0.0	10ltr	10 - 20ltrs/ha	300-600ltr/ha

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Ocean Amino	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

DP Micrel Total 5.0.0

Micrel Total 5-0-0 corrects micronutrient deficiencies, a situation common to many sports turf situations.



Containing 6 chelated micronutrients, it is rapidly absorbed by both leaf and root.

Micrel Total can be applied throughout the growing season with no concern of phytotoxicity. It can also be tank mixed with herbicide and fungicide to improve efficacy.

- Prevents & corrects micronutrient deficiencies
- Maintains balanced micronutrition
- Contains Magnesium, Boron, Copper, Manganese, Zinc and Iron
- Excellent carrier for Herbicide and Fungicide
- Citrate / Nitrogen chelate eliminates any flush of growth.
- Aids in resistance to disease and tolerance to stress
- A total liquid micro-nutrient package
- Fully compatible with the wider Growth Products range and can be applied in a supplementary fashion



Analysis	Pack Size	Rate	Water Volume
5.0.0	9.46ltr	9.46ltrs/ha	300-600ltr/ha

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Micrel Total	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

UKelp



UKelp liquid kelp suspension is only made from wet Ecklonia Maxima Kelp and is milled to produce a smooth suspension and finally cold-pressed to produce pure Kelp extract.



The UKelp production procedure utilises cutting edge cell bursting technology from fresh kelp seaweed without the use of any chemicals or heat. This is the most effective manner to retain the bioactive compounds naturally present in the kelp. When kelp is cold-pressed in this procedure the fresh seaweed cell walls are disrupted and bioactive compounds are released into what we term a liquid suspension.

This kelp liquid suspension contains a multitude of vitamins, proteins, amino acids, organic acids, growth hormones, betaines, phytohormones, polysaccharides and mineral compounds that are beneficial for crop growth and health.

- Improved root development - mass and length
- Enhanced nutrient absorption
- Increased tolerance to environmental stress
- Enhanced plant defence mechanisms
- Improved chlorophyll production
- Increased yield
- Accelerated seed germination and plant establishment



Goëmar Seaweed

Goëmar is a unique liquid seaweed for use on all turfgrass surfaces to maximise plant health and optimise the uptake of minerals and micro nutrients from the root zone.



The micro-bursting technique used on *Ascophyllum nodosum* separates the seaweed sap from the cells and results in 100% pure seaweed juices (GA142), which contains a highly concentrated mixture of growth and stress relief hormones, vitamins and physio-activator compounds.

When applied to turfgrass surfaces this results in improved rooting efficiency, movement of nutrients in the plant to areas of growth, and stimulates plant defences against disease. The species of seaweed used in Goëmar (*Ascophyllum nodosum*) has been shown to stimulate Systemic Acquired and Induced Resistance that results in much reduced fungicide use, an increasing subject of world-wide plant research.

- Highly concentrated with very low application rate
- Provides phyto-hormones, betaines, amino acids and vitamins
- Encourages higher root mass and reduces plant stress
- Ideally suited for modern stadia and greens



Analysis	Pack Size	Rate	Water Volume
UKelp	20ltr	5-10ltrs/ha	300-500ltrs/ha

Analysis	Pack Size	Rate	Water Volume
Goemar	5ltr	3ltrs/ha	400ltrs/ha

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
UKelp	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Goemar	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Sustane 4.6.4 Compost Tea Bag

4.6.4 Compost Tea is the result of adding high quality Sustane compost that is rich in beneficial micro-organisms to water with the presence of oxygen and allow it to brew.



When these microbes are provided with water, oxygen and a food source they start to multiply rapidly, populating the “tea” with billions of beneficial microbes.

Microbiology from aerobic compost provides numerous benefits to plants and soil. Beneficial micro-organisms compete for resources with the disease-causing bacteria (pathogens) resulting in less disease pressure and healthier plants



- Individual 2.4kg tea bag
- Each bag brews up to 2200 litres of compost tea
- Brew for 18 - 48 hours
- Use regularly throughout the growing season to boost your healthy, diverse soil microbial population
- Increases the nutrient and water holding capacity of the soil
- Strengthens plants tolerance against hot, dry conditions
- Increases the soil's ability to suppress plant pathogens

Analysis	Pack Size	Rate	Water Volume
4.6.4	2.4kg	1 bag per ha	600 - 1000 ltrs/ha

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Compost Tea			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



Sustane BOLSTER MycoBio

BOLSTER MycoBio promotes vigorous seed & turf establishment and improved nutrient use efficiency.

It is a biologically super-charged granular soil amendment and microbial inoculant.



Specially formulated with a mix of endomycorrhizae and beneficial bacteria that enhances seed germination and vigorous plant establishment to increase quality and health.

BOLSTER MycoBio enhances root growth resulting in plants that are better able to withstand environmental stress.

- Beneficial mycorrhizae and bacteria in one product
- Enhanced seedling establishment
- Build strong, disease resilient plants from day one.
- Contains 30% Sustane aerobic compost with all the associated benefits to plant and soil health.
- Mycorrhizae are known to have benefits for reduced fertiliser requirement, better disease resistance and more consistently healthy plants across the whole sward.



Analysis	Pack Size	Rate
Bolster MycoBio	18kg	15 - 30g/m ²

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Bolster MycoBio			✓	✓	✓	✓	✓	✓	✓	✓	✓	

Advance Ferrogranul 20



A high quality, easily-soluble iron derived from ferrous sulphate heptahydrate. Can be mixed at a very low water volume to provide economic large-scale application.



Provides a quick green-up and surface acidification for disease prevention and culturally discouraging worm activity.

- Powder rather than granule so mixing prior is recommended.
- Tank mix with liquid fertilisers for synergistic uptake.
- Creates conditions less conducive to moss growth.
- Useful tool in autumn / winter disease prevention when part of a structured ITM programme.



Analysis	Pack Size	Rate	Water Volume
Advance Ferro'20	25kg	10-50kg/ha	300-600ltrs/ha

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Advance Ferro'20	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



Sustane ReGen 1.1.1

Structural soil conditioner supplying organic-rich and biologically stable humus, humic acids, beneficial microorganisms, zeolite, mycorrhizae, seaweed and organic nutrients.



Increase water and air infiltration, reduce long term compaction, and create a soil that will support diverse microbiology to provide turfgrass with strong defences against stress and disease whilst also increasing conversion of damaging thatch and surface debris into beneficial humus.

A great alternative to straight zeolite in the construction of new sand-based sports pitches at training grounds and stadiums. Also, an excellent tool for reinvigorating your golf greens soil at renovation time.

- Provides excellent high-carbon microbial food sources for a microbially diverse soil population.
- Increased CEC offering improved nutrient and soil water availability
- Improved permeability and infiltration

- Better oxygen supply to soil – encourages microbial activity, thatch breakdown and root growth
- Excellent alternative to zeolite in high-spec sports pitch constructions
- Work into golf greens at renovations for improved plant and soil health
- Aids the colonization of beneficial soil microorganisms
- Supplies humic acid and encourages vigorous root growth
- Provides carbohydrates such as alginic acid and mannitol
- Contains mycorrhizae for improved nutrient and water uptake, and increased plant stress tolerance



Analysis	Pack Size	Rate
1.1.1	22.7kg	50-150g/m ² Up to 1500g/m ² as soil amendment

Accupro Setting 50g/m ²		
Single	Double	Spread Width
6,U ₁ / ₂	6,P	3.0m



Advance Fulvic Acid

Advance Fulvic Acid is a 30% concentrated natural Fulvic Acid solution derived from lignite ore.



Fulvic acid carries a number of benefits for plant and soil health and enhances the efficacy of many foliar applications by increasing the uptake by the plant.

Fulvic acid is a natural complexing agent and carries the product directly into the leaf.

- It aids the movement of vitamins, coenzymes, auxins and hormones around the plant. During times of stress this can mean plants function at closer to their maximum capacity while still under stress conditions
- Increased oxygen absorption and increased growth has been recorded when compared to control plants
- Stimulates metabolism
- Increased root exudates which acts as a food source for the soil microbial population
- Increased growth under low light conditions



Analysis	Pack Size	Rate	Water Volume
Fulvic Acid	10ltr	5-20ltrs/ha	200-600ltrs/ha

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Fulvic Acid	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Advance Liquid Endo Mycorrhizae

A liquid formulation of endo-mycorrhizal species formulated specifically to promote the establishment and growth of perennial grass.



Use in golf and bowling greens to increase bent and fescue within the sward and in sports pitches to help germination and establishment of ryegrass with strong rooting.

Mycorrhizal fungi form a symbiotic relationship with perennial grass roots, but offer no benefits to *Poa annua*. Research shows mycorrhizal grasses resist stress better and require less water and fertiliser for healthy growth.

- Contains 220,000 spores/propagules of 4 x mycorrhizal species *Glomus intraradices*; *G. Mossae*; *G. Aggregatum*; *G. Etunicatum* per 200ml pack
- Easy to apply liquid formulation
- Use at overseeding of greens to promote new bent and fescue seed growth
- Apply as a seed coat or spray as a drench



Analysis	Pack Size	Rate	Water Volume
Endo Mycorrhizae	200ml	200ml/ha	600-1000 ltrs/ha

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Endo Mycorrhizae				✓	✓	✓	✓	✓	✓	✓		

Advance Mycorrhizal Inoculant

Advance Mycorrhizal Inoculant is a biological growth activator for sports turf. Newly constructed and renovated sand-based sports pitches are almost sterile.



Advance Mycorrhizal Inoculant contains live spores of beneficial mycorrhizal fungi, growth promoting soil fungi, bacteria, carbon and organic soil nutrients to improve rooting and speed establishment.

Mycorrhizae form a long-term relationship with perennial grass species to improve nutrient uptake and reduce plant stress and disease.

Can also be brushed into aeration holes/lines on established turf to improve new seed establishment and promote perennial species.

- Faster grow-in and establishment of new sports pitches and turf surfaces
- Promotes establishment and longevity of perennial grasses
- Greatly improves root mass and strength
- Healthy grass is less susceptible to and recovers faster from disease



Growth Products SAR Activator

A 10% Salicylic Acid in an easy-to-apply solution that can be tank-mixed with a variety of products to reduce incidence of disease.



Salicylic acid induces Systemic Acquired Resistance in plants. Elevated salicylic acid levels in plant leaves produces plants with greater ability to withstand attacks from fungal pathogens.

Plants naturally produce defence compounds when under attack from pathogens – salicylic acid induces these compounds to be produced ahead of infection, enabling the plant to resist disease.

- Effective plant tolerance of many biotic stresses – drought, cold, heat, etc.
- Can be tank-mixed with chelated irons, phosphites, fertilisers and fungicides for an improved response
- Can be applied as a foliar or soil-targeted spray as it moves systematically through the plant
- Another tool to help turf managers move away from fungicide reliance



Analysis	Pack Size	Rate	Accupro Spreader Setting for 50g/m ² (Single Pass)	Effective Width
Mycorrhizal Inoculant	25kg	50g/m ²	4, R	3m

Usage Period

Product	J	F	M	A	M	J	J	A	S	O	N	D
Myco-Inoculant				✓	✓	✓	✓	✓	✓	✓		

Analysis	Pack Size	Rate	Water Volume
SAR Activator	10ltr	10ltrs/ha	200-600 ltrs/ha

Usage Period

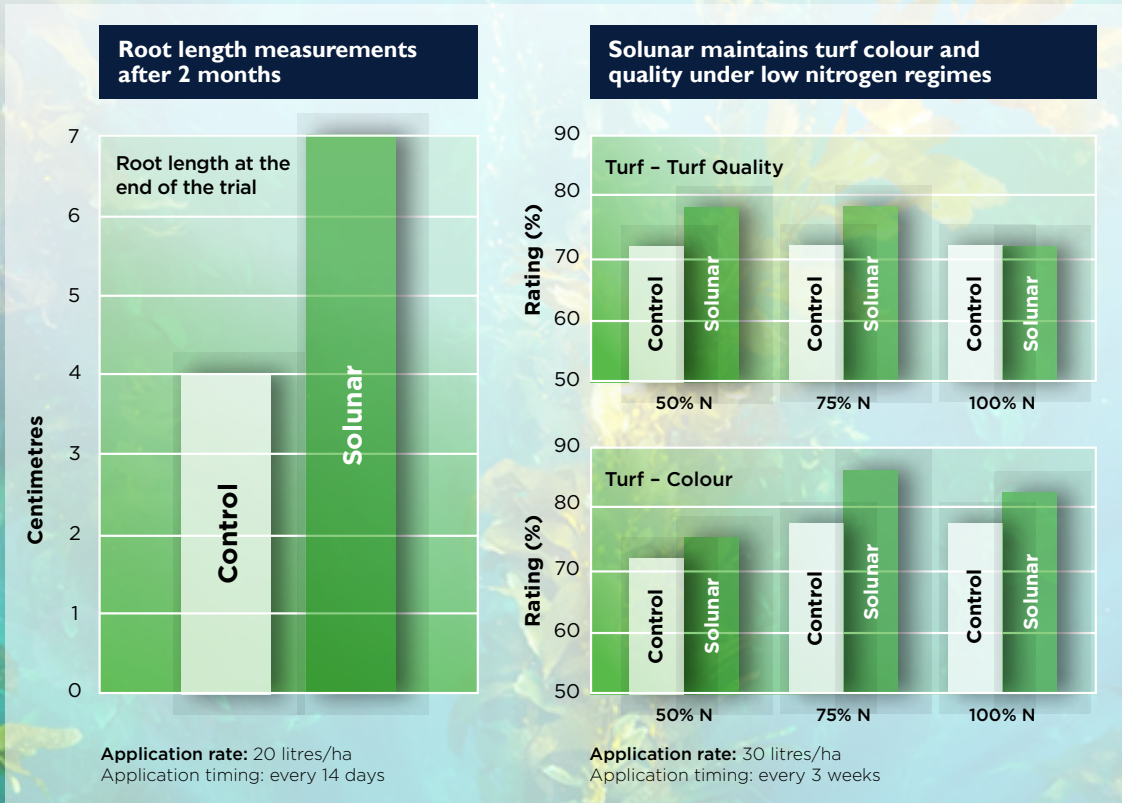
Product	J	F	M	A	M	J	J	A	S	O	N	D
SAR Activator	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



A market leading cold-process extract of *Ascophyllum nodosum* from AGS. Solunar is produced from 100% freshly harvested North Atlantic seaweed and contains a wide range of natural compounds such as alginates, amino acids and antioxidants that have well-researched biostimulant and stress-reduction properties for turfgrass.

Specially formulated for sports turf use, it can be applied to golf greens, tees, fairways, sports pitches, and all other sports turf or ornamental lawns. Tank-mixable with a wide range of liquid products such as fertilisers, other biostimulants and fungicides.

Now available with 5% chelated iron for rapid green up and plant hardening in high disease pressure situations.

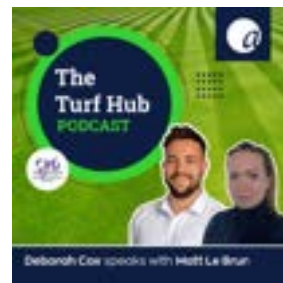


Product	Pack Size	Rate	Water Volume
Solunar	10, 200, 1000ltr	10 - 20ltrs/ha	160 - 800ltrs/ha
Solunar FE	10, 200, 1000ltr	10 - 30ltrs/ha	160 - 450ltrs/ha

Usage Period											
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



The Turf Hub Podcast



AGS's Turf Hub Podcast takes a deeper look into the key people within this wonderful industry. Tapping into their knowledge, the latest technologies, progression and stresses that are faced as turf managers while adding a human element and insight into the people behind what everyone sees on TV.

The passion, the stories, the work ethic, the laughs and the tears; gaining and spreading positivity throughout the industry and beyond.

TourTurf TAG



TourTurf TAG is a NPK fertiliser and an organic soil conditioner that improves the surface of the turf on greens, tees, fairways and football pitches. Can be used on all types of other amenity areas too. It also contains magnesium and wetting agent, so it both stimulates the soil and the plant, giving a good green up effect.



The product should be used in spring, autumn and during other wet periods. For maximum efficacy the product should be watered in immediately or applied when rain is imminent. Also works well when applied after aeration and brushed down the holes.

- Supplied in Fine Grade (1-2.5 mm)
- Supports a strong sward density
- Strengthens both root and leaf
- Slow release formula for 6-8 weeks



Analysis	Pack Size	Rate	Longevity
TourTurf TAG	20kg	30g/m ²	6-8 weeks

Usage Period

Product	J	F	M	A	M	J	J	A	S	O	N	D
TourTurf TAG	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Advance Sol-U-Sea

Sol-U-Sea - a 100% soluble organic extract of Ascophyllum nodosum seaweed, promoting vigorous grass growth, healthy root systems and resistance to environmental stress.



Provides turf with essential trace elements and plant-growth-promoting substances such as 16 amino acids, carbohydrates and alginates.

Sol-U-Sea is compatible to tank mix with most things except directly with acids and oxidizing agents e.g. products containing iron, potassium nitrate. If using these, dissolve/mix them first and fill tank 2/3rds full before adding the Sol-U-Sea.



Analysis	Pack Size	Rate	Water Volume
Sol-U-Sea	800g	1.0 - 1.5kg/ha	Minimum 600 ltrs/ha

Usage Period

Product	J	F	M	A	M	J	J	A	S	O	N	D
Sol-U-Sea	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Growth Products Bio Nutrients

A unique blend of organic nutrients, seaweed, humic acid, mycorrhizae, chelated micronutrients and beneficial bacteria in an easy-to-use 100% soluble pack.



A cost-effective method of building soil structure and health, improving rooting, reducing stress and improving turf colour. BioNutrients contains 100% 'active' ingredients with none of the inert fillers you find in some soluble products.

- Maintain turf health and colour without forcing unwanted growth.

- Eleven species of mycorrhizal fungi to aid establishment, promote root growth, increase stress resistance and enable plants to extract available nutrients from the soil.
- Rich, organic carbon food sources from Humic Acid, Seaweed and natural sugars to feed beneficial soil biology and promote healthy soils and plants.



Analysis	Pack Size	Rate	Water Volume
Total Pak	250g sachets	1-4 packs/ha	600ltrs/ha

Usage Period

Product	J	F	M	A	M	J	J	A	S	O	N	D
Total Pak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

SP-1™



SP-1™ is the complete bio fertiliser, designed to aid in the conversion of inorganic and organic nutrients into plant available forms. This advanced technology contains a diverse community of microbes, plant-based humus extracts and algae that work together to transform soil structure, make more nutrients available and improve water use efficiency.



SP-1 acts as a comprehensive system, improving soil and turf health in one clear, environmental solution.

Our unique formula includes:

1. Proprietary Plant-Based Humus Extract
2. Plant Growth Promoting Rhizobacteria (PGPR)
3. Fermented Plant Extracts
 - Converts inorganic and organic nutrient into plant available forms
 - Aggregate and reinoculate soil
 - Improve air and water infiltration
 - Boost microbial populations
 - Contains a comprehensive microbial content plus humates



Super Fifty® Prime



Adverse weather events (e.g., cold, drought, heat and water logging) cause 'oxidative stress' and damage in turf grasses. SuperFifty® Prime is proven to eliminate oxidative stress in turfgrasses.



The process involves application of SuperFifty® Prime 3-5 days prior to an adverse weather event. It inhibits oxidative stress through a mechanism known as 'Priming' which induces gene modulation and a series of physiological changes in grass species.

Priming with SuperFifty® Prime will help turf to withstand stressful periods.

Regular applications of SuperFifty® Prime reduces stress build up on all sports turf due to abiotic stresses including adverse climatic conditions, soil compaction, acid or alkaline soil, wilt / drought, mechanical wear and poor drainage.

SuperFifty® Prime is a highly concentrated Ascophyllum nodosum extract (50% w/v).

- Prime your turf prior to stress conditions
- Improve water and nutritional uptake
- High concentration of seaweed - 50% Ascophyllum nodosum
- A key part of a non-fungicidal disease prevention plan.



Analysis	Pack Size	Rate	Water Volume
SP-1	10ltr	2-3ltrs/ha	300-500ltrs/ha

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
SP-1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Analysis	Pack Size	Rate	Water Volume
SuperFifty®	10ltr	2-3ltrs/ha	300-500ltrs/ha

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
SuperFifty®	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

LamVita®



LamVita® is proven to enhance chlorophyll production and photosynthetic activity of turf grasses.

It increases the stabilization of chlorophyll resulting in darker greener leaves, improving visual quality and overall plant health.

LamVita® enables a rapid growth response in turf grasses, by stimulating the increased uptake of nutrients from the soil.

Loss of grass cover due to shade is a significant problem in golf courses and stadia and LamVita directly addresses the issue of low light intensity.

LamVita® applications will increase photosynthesis, growth rates, leaf thickness and stomatal density, culminating in improved grass, cover and quality.

- Enhances chlorophyll production and plant health
- Produces darker, greener leaves without iron
- Improves the uptake of water and nutrients
- Popular in shade conditions - both stadia and golf greens



MicroGrow™



MicroGrow™ improves root growth and density in all turfgrass cultivars and can act rapidly at low application rates in a cost-effective manner, as a proven alternative to bulk organic soil amendments and expensive synthetic polymers.

Increased soil microbial activity is essential for a healthy vigorous turf with uniform plant density and improving and supporting populations is essential for all turfgrasses, particularly those grown in sand and sand diluted media.

MicroGrow™ is a specialised formulation with a blend of seaweed extracts and other naturally-derived compounds of marine and terrestrial origin. It is tailor made for root drench application to increase biological activity in sports turf soils.

- Increases soil microbes populations
- Works within the rhizosphere, stimulating both root mass and length
- Improves low CEC and pH media, making nutrient more readily available on the exchange site



Analysis	Pack Size	Rate	Water Volume
LamVita®	10ltr	2.5ltrs/ha	300-500ltrs/ha

Analysis	Pack Size	Rate	Water Volume
MicroGrow™	10ltr	6ltrs/ha	600ltrs/ha

Usage Period

Product	J	F	M	A	M	J	J	A	S	O	N	D
LamVita®	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Usage Period

Product	J	F	M	A	M	J	J	A	S	O	N	D
MicroGrow™	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

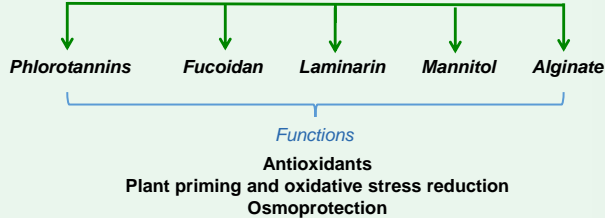
SuperFifty® Prime: Product characteristics.

SuperFifty® Prime: **Constituents and bioactivity:**

An *Ascophyllum nodosum* extract is obtained by a unique method of extraction and formulated to give specific attributes.

- Low carbon footprint due to high concentration, lower packaging, transportation and disposal costs.
- Sufficient amounts of bioactives are required for efficacy.
- Compatible with fungicides while ensuring efficacy.

SuperFifty® Prime contains a range of naturally derived bioactive molecules:

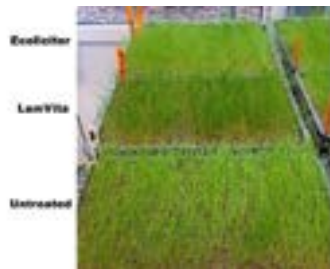


Active ingredients above are high-value compounds, considerably expensive, with some commercially unavailable.

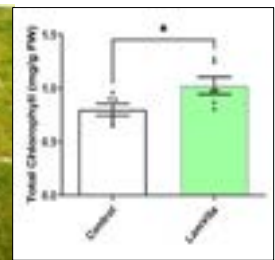
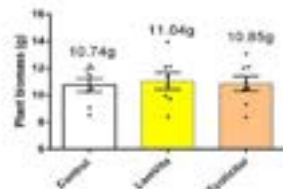


LamVita®: improved chlorophyll and photosynthesis

Improved chlorophyll in Turf Grass (Fescue)



LamVita® greening effect in stressed plot with 2.5% organic content soil
Trial-open field (0.75m² plots)



Results:

- Turf vigour: Improved.
- Turf growth: homogenous.
- Turf colour: greener.

Ref: In-house trial, BioAtlantis Ltd., 2017

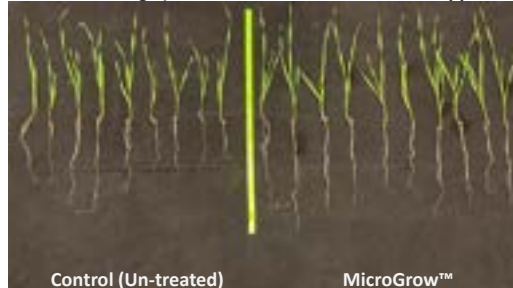
Early seedling establishment with MicroGrow™

Turf grass (Fescue) seedlings grown on MicroGrow™ containing media

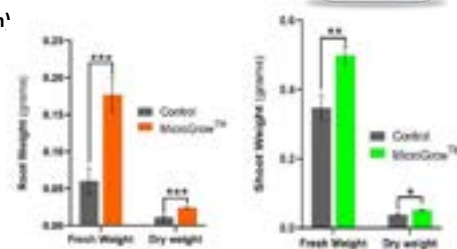


Turf grass:
➤ Improved root length
➤ Improved secondary roots

Wheat seedlings (4 weeks after MicroGrow™ soil application)



- ❖ Root Weight (Wheat)
- ❖ Shoot Weight (Wheat)



Wheat:

- Improved root weight
- Improved shoot weight



5. Plant Protection

Featured Products:

- Companion
- Instrata Elite
- Medallion
- Ascernity
- Dedicate
- Insignia

“With on-going changes to legislation relating to pesticide use, it is more important than ever that an integrated approach to disease management is employed...”



UK Turf Disease

The majority of turf diseases are caused by fungal pathogens but some fungi are more strongly pathogenic than others. Many of the common cool season turf diseases are caused by fungi that rely on a weakened plant and therefore reducing disease incidence and severity is often aligned to maintaining a strong sward.



Kate Entwistle

With on-going changes to European Legislation relating to pesticide use, it is more important than ever that an integrated approach to disease management is employed and central to this is an understanding that the cultural conditions can limit disease development. Making use of the genetic variation that exists between grass types and cultivars can also minimise disease development through a sward.

By managing rootzone quality and using weather information services, it can also be possible to pre-empt disease outbreaks and plan an efficient integrated management strategy.



Microdochium Patch

Microdochium Patch (aka Fusarium Patch), caused by the fungus *Microdochium nivale*, is arguably the most damaging disease of cool season turf. The fungus can live saprophytically on dead and decaying plant tissues and low levels of disease are possible year-round. Typical symptoms develop on susceptible turf during periods of cool, wet weather and because alternating periods of frost and thaw, drizzle or fog are all ideal for the rapid development of this disease, it tends to be more prevalent during the winter months. During prolonged snow cover, the pale pink fungal mycelium within infected tissues accumulates on the sward and is revealed at snow melt as the typical symptoms of Pink Snow Mould. *Microdochium nivale* is not killed by frost but its growth may be suspended until temperatures start to increase.

All grasses are potentially susceptible to infection but a sward that is growing under conditions of stress is more likely to develop severe disease. Early symptoms of infection, especially on close mown turf, appear as small mid-brown patches approximately 20mm diameter that will increase to form larger, regular patches that may coalesce to produce large blighted areas of turf. The outer edge of the water-soaked patches may develop aerial fungal mycelium and this can be encouraged by placing a sample of turf in a sealed plastic bag overnight to confirm the activity of the disease. The infected leaf tissue will also support millions of fungal spores that give the turf a slimy feel and they will spread the infection across the sward.

On low maintenance turf, the sward may appear generally water-soaked with no distinct patch development. Movement of fungal spores and infected plant tissues can easily spread this disease but infection can only occur if the local environmental conditions allow it.



Courtesy of Peter Jones

Unbalanced nutrition, especially high nitrogen, can predispose turf to infection and low potassium availability may also affect disease severity.

Leaf wetness is essential for fungal infection and thatch can contribute to this requirement as well as providing a good source of saprophytic nutrition for the fungus.

Where required, fungicide applications can be made to manage disease development and areas that are routinely affected by this disease can be monitored for the best time to begin applications. Greater control may well be achieved by employing a preventative fungicide programme as part of the overall disease management strategy where the disease is especially problematic.

Microdochium Patch

*Non-Pesticidal
microdochium
prevention*



Red Thread

Red Thread is caused by the fungus *Laetisaria fuciformis* and is a common disease on any nutrient-stressed turf. Unbalanced nutrition or low nitrogen (and potassium) availability is likely to encourage disease development, especially in Ryegrasses which have a high nutrient requirement. This disease develops almost invariably in the leaf tissues forming diffuse, coalescing patches of bleached turf that support characteristic red needles (sclerotia) of accumulated fungal mycelium as the infection matures.

The mycelium in these red needles will either perpetuate infection by allowing the fungus to grow on to adjacent plants, or will allow the fungus to survive adverse conditions by dropping in to the base of the turf until favourable growth conditions resume.

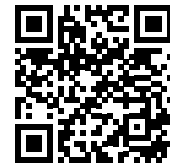
Red Thread is common during mild, damp weather and leaf wetness is again important for fungal infection. To minimise disease development, clippings should be removed and scarification or core aeration can help to reduce leaf surface wetness in thatchy turf and reduce the amount of over-seasoning sclerotia that may have accumulated during active disease development. An application of nitrogen to affected turf may be all

that is required to allow the disease to 'grow out' and because the crown tissues are almost never diseased, quick recovery from even the most extensive outbreaks should be achievable. Fungicides are not generally necessary in an integrated programme for this disease but the available active ingredients will provide control should application be necessary.



Red Thread

*Non-Pesticidal
Red Thread
prevention*

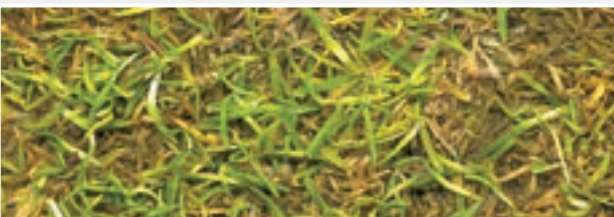


Anthracnose Diseases

The fungus *Colletotrichum cereale* (formerly *C. graminicola*) causes a Basal Rot and Foliar Blight infection in weak swards. These diseases are strongly correlated with turf stress.

Basal Rot infections developing most often in meadowgrass turf during cool, wet weather and Foliar Blight develop on all grasses during warmer conditions. Water is essential for fungal infection and therefore even with the Foliar Blight, a wet leaf is necessary for disease to develop. Basal Rot infection develops in the crown tissues, reducing water and nutrient movement through the plant and forcing the development of stress-related yellow to orange/red leaf tissues that typify this disease. Large areas of turf can become diffusely affected by this disease and turf loss is not uncommon.

During Foliar Blight infections, the sward becomes colonised by the fungus which causes a diffuse, tan/grey leaf discoloration that appears to darken as the infection matures and as fungal spores are produced on the infected sward. Foliar Blight often develops in turf above a water-repellent rootzone because applied water remains at the base of the turf, allowing development of the humidity



required for infection.

Nutrient stressed turf is prone to Anthracnose development and Basal Rot is encouraged by a wet, compacted rootzone. That said, even where Anthracnose is active, water availability must not be restricted because infected plants will die from drought stress. Therefore, the key to managing Anthracnose is to maintain adequate moisture, apply light, regular applications of balanced and complete nutrition, increase the mowing height and avoid any abrasive grooming or topdressing applications. Anthracnose diseases are stress related and therefore you need to minimise all abiotic stresses.

There are no resistant grasses or cultivars but a diverse sward will tend to have less severe infection. Fungicides will be effective if they are applied at the correct time. With this disease, preventative applications can often mean less overall fungicide has to be applied to establish control.

A combined application of a systemic product with a contact or localised penetrant will provide control but repeat applications may need to be made in turf that is especially susceptible to infection.

Anthracnose

*Non-Pesticidal
Anthracnose
prevention*



Take-all Patch

Pathogen: *Gaeumannomyces graminis* var. *avenae*

Susceptible Species: Traditionally found on *Agrostis* sp. but now also commonly found on *Poa annua* as well.

It is a disease that infects the root and crown tissues, causing a decay which results in bronze-coloured patches of turf that may become dominated by less susceptible grasses or colonised by broad-leaved weeds. The patches tend to have a definite edge where infected turf abuts a healthy sward and the size of the patches can increase annually to approximately 30cm diameter.

Initial infection of the roots will occur during the late spring but turf symptoms will only begin to show during the summer and autumn months.

Infected stem base tissues will reveal mats of dark fungal mycelium and as the infection matures, small flask-like spore-producing that causes Take-all Patch in turf, *Gaeumannomyces graminis* var. *avenae*, is a strong pathogen but it has a weak ability to compete with rootzone antagonists. For this reason, Take-all Patch is often seen in new constructions or in turf where sudden changes in rhizosphere pH may rapidly adjust microbial balance. The fungus typically causes disease in bentgrass turf but has become an increasing problem in meadowgrass sward structures will develop through the leaf sheaths.



The fungus may go unchallenged by rootzone antagonists for several years but eventually, a matured rootzone will encourage so-called Take-all decline which will limit the further development of this disease.

One of the key elements essential in limiting disease severity is manganese and regular applications of this micronutrient should be considered in susceptible turf.

The disease can be spread by movement of infected plant tissues and dissemination of spores by air and water. The fungus shows increased growth at high pH and avoiding any small but sudden increase in rhizosphere pH can help to lessen disease activity. Application of acidifying fertilisers and increasing surface drainage will help limit conditions favourable for disease.

Because this is primarily a root disease, any fungicide application must be taken up by the roots in order to be effective.

A late autumn (as plant growth is slowing) and spring application (as growth is resuming) of an appropriate fungicide has been proposed to provide effective management of the fungus during the early season infection.

Take-all Patch

*Non-Pesticidal
Take-all Patch
prevention*



Fairy Rings

There are known to be over 50 Basidiomycete fungi that can cause the development of fairy rings and the severity of the symptoms expressed on the turf will depend on the fungus that is causing the problem. These fungi will colonise either the base of the turf (superficial fairy rings or thatch fungi) or the rootzone and when colonising the rootzone, may result in a range of above-ground symptoms.

We tend to refer to the most damaging rings as Type 1 and in these, the accumulation of fungal mycelium can eventually lead to areas of dying turf or bare ground that are bordered on both sides by stimulated turf growth and on their outer edge, may become colonised by fungal fruiting bodies (mushrooms / toadstools). Slightly less damaging to turf quality are the Type 2 rings where stimulated rings or arcs of turf may or may not be associated with fungal fruiting bodies and the least damaging of all are the Type 3 rings that show no change in turf quality but are visible only by the development of the mushrooms / toadstools. In all cases, removal of the immature fruiting bodies by mowing or brushing will help to limit further spread of the fungus.

Some fairy ring fungi can grow to several meters in depth in open, high sand content rootzones and here the symptoms on the over-lying turf can become extreme.

All of these fungi obtain nutrition from dead and decaying plant material and in breaking down the plant remains, the released nutrients are taken up by the fungus for its growth. Some nutrient will also be taken up by the turf roots and this results in some of the stimulated plant growth. The developing fungus grows radially outwards from a central point, increasing in mass as it does so. The old fungal mycelium towards the centre of the rings will eventually die and release nutrient back in to the soil. This release of fungal cell contents is also responsible in part for the stimulated plant growth.

The fairy ring fungi will cease growth only if they run out of nutrient on which to feed, a solid barrier or disturbed ground. If two rings grow in to one another, they 'mutually inhibit' each other's growth and a figure of eight will develop. If similar growth continues to occur, arcs and ribbons of fairy rings will develop.

One of the main problems with fairy ring growth is the development of water-repellent soil and this can result in the turf being unable to access water and nutrient.

Management of fairy rings is strongly aligned to managing rootzone repellence. The sward in fairy ring affected areas can often develop foliar fungal diseases including Microdochium Patch, Red Thread and Anthracnose Foliar Blight as a result of the stimulated plant growth or water related stress that is associated with different phases of fairy ring development.

Management of fairy ring symptoms includes being aware of the depth of fungal infection through the rootzone. Rootzone core samples taken to depth can be used to

determine the depth of water-repellence through the profile and any applied wetting agent (surfactant) will need to be watered in sufficiently to penetrate the affected depth.

Often, wetting agents will need to be routinely re-applied to affected areas and the initial application should be made prior to the rootzone becoming dry. Any applied fungicide with labelled efficacy against fairy rings will need to be positioned sufficiently deep in the profile as to reach the fungal mycelium. Due to the observed mutual inhibition of fairy rings, there is a possibility that removal of the turf and rotovation of the affected rootzone could lead to the fungus effectively killing itself out.

There is always the possibility that this approach will result in the occurrence of an increased number of small rings so care should be taken before this is considered!



Type 1



Type 2



Type 3

Fairy Rings

*Non-Pesticidal
Fairy Ring
prevention*



Leaf Spot

Pathogen: Mostly Drechslera sp.

Susceptible Species: Many turfgrass species can be affected, but it is mostly a concern on Ryegrass in winter sports.

Certain diseases, such as Leaf Spot, develop only on one grass type (Agrostis) and therefore identification of the affected grass can often help with the identification of the disease. Symptoms can develop at any time of the year but a wet leaf surface is required to enable infection and this often means that symptoms become increasingly apparent during the spring and autumn months or on shaded turf.

Quite often, disease develops rapidly in a dry, thatchy turf that is rewetted due to rainfall or irrigation. The fungi that cause these diseases are capable of living saprophytically in dead plant tissues and previously infected material



acts as a good source of inoculum. In certain Leaf Spot infections, the fungus can develop in to the crown tissue and this will result in a decay or 'melting out' of the affected areas of turf.

Most leaf spot infections will not cause severe damage to the turf and can be effectively managed by application of balanced nutrients to encourage the turf to grow away from the disease and removal of infected clippings when mowing. However, if Leaf Spot is a problem in stadia, for example, where shade and humidity may not be easily managed, application of fungicides may be needed to prevent continued disease development and loss of visual turf quality.

Since the fungi that cause Leaf Spot disease may be relatively host plant specific, the use of different grass types or cultivars can help to reduce disease severity in a given area.

Leaf Spot

*Non-Pesticidal
Leaf Spot
prevention*



Rhizoctonia Blight (Brown Patch)

This disease, caused by the fungus Rhizoctonia solani, is not too common across the UK because high temperatures (20 to 30C) and high humidity (leaf surface wetness) are required for infection and disease development. That said, it may occur during the summer months and has often been seen in stadia environments.

All grasses may be affected but the development of symptoms will vary with grass type and height of cut. On close-mown fine turf, tan coloured circular patches may develop a dark, water-soaked appearance and can be anywhere between 5cm and 60cm diameter.



On longer swards, the watersoaked plants may collapse and form large areas of blighted turf, usually without a darker border. Patches can increase in size and coalesce if conditions remain favourable and will be spread by movement of infected leaf tissue (mycelium) and mycelial mass (sclerotia).

The disease most often develops on turf that has received high levels of nitrogen application but infection seldom develops in to the crown tissues.

The disease incidence can be minimised by maintaining adequate & balanced nutrition and by reducing the period of leaf surface wetness. Fungicides are generally not required to manage this disease.

Brown Patch

*Non-Pesticidal
Brown Patch
prevention*



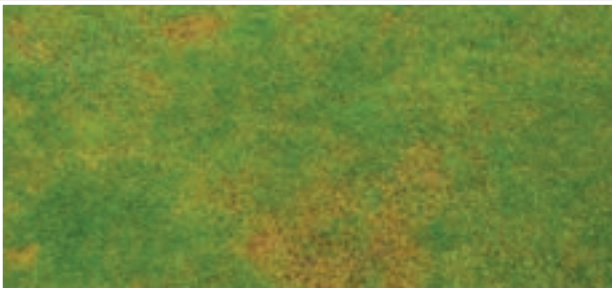
Rapid Blight

Pathogen: *Labyrinthula terrestris*

Susceptible Species: *Poa* is the main species affected by Rapid Blight, but *Agrostis* spp. and *Lolium perenne* have also been infected.

Other pathogenic species cause disease in marine environments and therefore unsurprisingly, Rapid Blight development in turf is strongly correlated to rootzone salinity. Individual cells of *L. terrestris* are spindle-shaped and colonise plant root and leaf tissues

They cause an initial watersoaking of the plant which may lead to areas of infected turf with general symptoms similar to those of Anthracnose or Microdochium Patch and *Poa* is the most susceptible grass type. Other grasses including



ryegrasses and most bentgrasses may also become badly affected but salt-tolerant bentgrass cultivars and fescues appear to be less susceptible.

Depending on the sward composition, height of cut and salinity level, the disease may spread rapidly to kill an entire putting surface in a few days.

Symptoms can develop at any time but as rootzones dry out during the summer months, symptoms development can be rapid.

Early diagnosis of the symptoms is crucial for the management of this disease because only pyraclostrobin, and trifloxystrobin have so far shown good control (in US trials) and efficacy increases if applied early in disease development.

Management of soil and water salinity is important and rainfall remains the best method of control.

Rapid Blight

*Non-Pesticidal
Rapid Blight
prevention*



Rust

Pathogen: *Puccinia* & *Uromyces* spp.

Susceptible Species: Can affect all turfgrasses, but commonly seen on Perennial Ryegrass (*Lolium perenne*), Smooth-Stalked Meadow Grass (*Poa pratensis*) and Yorkshire Fog (*Holcus lanatus*).



For this reason, although the symptoms may appear severe (due to the quantity of spores that the fungus can produce), turf is not likely to be killed as a result of a disease outbreak. Rust fungi are extremely well specialized parasites and may have a life cycle that includes up to 5 different spore types. However, when disease is active in turf, there tends to be a cycling of one spore type which allows rapid development and spread of the fungus.

Disease may develop in all turfgrasses but it is perhaps more common (and important) in *Poa pratensis* and in *Lolium perenne*. Initial symptoms appear as a slight leaf chlorosis but rapidly, small blisters (pustules) will be seen along the leaf blade and these eventually rupture to release their orange fungal spores. Symptoms begin to develop through the warm, dry summer months and typically show on nutrient and / or moisture stressed turf.

The disease can generally be managed effectively by removing clippings and adjusting nutrient and water input. That said, the fungi can develop a specific relationship with their host and individual 'strains' or races of the fungus may develop on a specific grass cultivar.

For this reason, including more than one cultivars in area that is prone to Rust infection can help to minimize the development of disease symptoms. Fungicides are rarely necessary to control Rust diseases.

Rust

*Non-Pesticidal
Rust prevention*



Yellow Tuft (Downy Mildew)

Pathogen: *Sclerophthora macrospora*

Susceptible Species: Predominantly Bentgrasses (*Agrostis* spp.) and Annual Meadow Grass (*Poa annua*) but all cool season grasses can also be occasionally attacked. This disease is commonly associated with poor drainage and large areas of disease are often seen on low-lying and poor-draining sections of golf greens.

The most advanced symptoms of this disease are generally expressed in the spring or autumn months as excessive tillering through infected plants, giving the sward a mottled, tufted appearance.

Typically, affected plants are chlorotic and have noticeably diminished root development allowing them to be pulled easily from the sward. Symptoms develop rapidly if there is free water around the base of the turf. Poor surface



drainage will exacerbate the symptoms. Because *S. macrospora* is an obligate parasite, the fungus will always remain inside infected plant tissues but will only cause significant symptom expression when environmental conditions are favourable.

In the early stages of development, the presence of the fungus may be expressed as small, red-brown marks on the leaf blade with no apparent effect on tillering and this symptom can be mistaken for Leaf Spot disease.

Yellow Tuft is most often seen on close mown fine turf and because fungal activity increases with water availability, areas that tend to sit wet or that are in the path of water movement across a surface, will be first to express the symptoms.

Control of this disease should focus on water management around the base of the turf and through the upper rootzone profile. The severity of the symptoms will increase as water availability increases and therefore, by focusing on improved water management, the symptoms will be reduced.

Fungicide application is not necessary.

Yellow Tuft

*Non-Pesticidal
Yellow Tuft
prevention*



Plant Parasitic Nematodes

Over the last decade, we have become increasingly aware of the potential problems to turf caused by high populations of plant parasitic nematodes (PPN). PPN are obligate parasites, feeding only on living plant tissues.

They have long been recognised as causing damage to warm-season grasses but research has now identified many different species that are frequently present in cool season turf. PPN populations will naturally rise and fall during the year and population growth is strongly affected by temperature.

They are able to migrate vertically or horizontally to avoid unfavourable conditions or to locate more productive feeding sites. PPN are aerobic organisms that require a film of water through which to move and their populations can rapidly build in high sand content rootzones.

PPN can be divided in to either endo-parasites that spend most of their life within plant tissues or ecto-parasites which remain in the rootzone whilst feeding on plant cell nutrients. They may also be migratory or sedentary in their feeding habit and most PPN that affect turfgrasses, do so by feeding on or within the roots.

There are a small number of PPN that colonise the stem base or leaf tissues but little is currently known about relative population damage.

PPN feed by inserting a hollow spear (stylet) in to the plant tissues, introducing compounds to maintain their feeding sites and removing the plant cell content. They can significantly and adversely affect the plants biochemical balance to sustain their parasitic behaviour.

The most damaging PPN are the so-called sedentary endo-parasites known as the Root-knot (*Meloidogyne* spp.), Cyst (*Heterodera* and *Punctodera* spp.) and Root Gall (*Subanguina* sp.) nematodes. The Root Gall nematode is largely restricted to infection of *Poa* species but all grasses are susceptible to infection by the other two. Induced changes in root structure and function directly affect plant growth and development, resulting in a weak sward that is likely to show symptoms of stress.

The lesion nematode (*Pratylenchus* spp.) is a migratory endoparasite that causes significant damage to root cortical tissues. There are a large number of migratory (and occasional sedentary) ecto-parasites that can feed on turfgrass roots and some can benefit from endo- and ecto-parasitic behaviour. Because most PPN affect water and nutrient uptake, visible turf symptoms often resemble drought or nutrient stress.

By maintaining a strong and healthy sward, the turf is more capable of tolerating the feeding activity of high PPN populations. Recent research has shown that reducing turf stress through biostimulant application, can reduce the damage done by these parasites.

There is presently one product available with approval to control PPNs but several soil amendments have been seen to suppress PPN populations.



Plant Parasitic Nematodes

Non-Pesticidal Plant Parasitic Nematodes (PPN) Prevention



Moss

There are several different types of moss that can cause problems in amenity turf, but they generally colonise a weak sward. These are usually scalped, worn, nutrient deficient, drought stressed or wet turfgrass areas.

Mosses belong to a group of plants called Bryophytes which like most plants contain chlorophyll and photosynthesise to facilitate their growth and development. However they do not have typical roots but possess so-called rhizoids that help to anchor them to the ground and take up water directly through their leafy surface.

Moss plants don't produce seed but release microscopic spores that can easily be spread across the turf and enter the profile to depth. The vegetative parts of the moss plants can also serve to increase its composition in an infected sward.

Moss can be a problem in turf all year round but its presence in the sward will be more apparent if turf becomes weak.

The silver thread moss *Bryum argenteum* is a common problem on weak or worn turf areas and once in the sward, it can rapidly become established and very difficult to remove. This moss in particular can have a significant and detrimental effect on the visual and playing quality of a close-mown, fine turfgrass surface. Other moss species have a more open growth habit than that of *B. argenteum*, but all moss invasions will change the quality of the playing surface and should be targeted for removal as soon as they are seen.

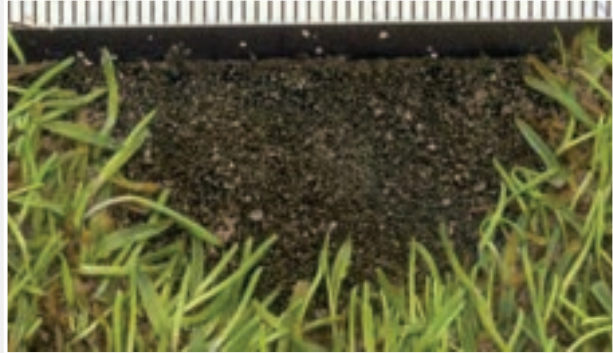
Effective and long-term control of moss in turf relies heavily on producing a strong sward that will out-compete the moss plants.

It is often said that 'moss invades a problem and then becomes a problem'. Products aimed at weakening the moss plants should be applied when the rootzone is moist and when the moss is actively growing. One to two weeks after application, the moss plants should become darker in colour or show reduced vigour.

These weakened plants can be removed by scarification and the sward encouraged to fill in through the thinned areas, thus reducing the conditions favourable for re-establishment of the moss. Since moss rhizoids can typically colonise the upper 20-30mm of the rootzone, deeper scarification will be necessary to remove the moss fragments and reduce its impact on the sward.

The upright and compact nature of *B. argenteum* in

particular makes this a challenging moss to remove because applied products are not likely to wet / penetrate the plants but be dispersed across their surface.



Moss

Non-Pesticidal Silver Thread Moss (Bryum argenteum) Prevention



Gray Leaf Spot

The majority of turf diseases are caused by fungal pathogens but some fungi are more strongly pathogenic than others. Many of the common cool season turf diseases are caused by fungi that rely on a weakened plant and therefore reducing disease incidence and severity is often aligned to maintaining a strong sward. With on-going changes to European Legislation relating to pesticide use, it is more important than ever that an integrated approach to disease management is employed and central to this is an understanding that the cultural conditions can limit disease development.



Making use of the genetic variation that exists between grass types and cultivars can also minimise disease development through a sward. By managing rootzone quality and using weather information services, it can also be possible to pre-empt disease outbreaks and plan an efficient integrated management strategy.

Symptoms first appear as small, water-soaked spots – often gray to light brown (but can vary) with a dark border. Older lesions are sometimes surrounded by a yellow halo and leaves may be covered with grayish conidia which covers the leaf giving it a ‘velvet’ look of grey-coated leaves.

Gray Leaf Spot

*Non-Pesticidal
Gray Leaf Spot
prevention*



Brown Ring Patch (Waitea Patch)

Pathogen: *Waitea circinata* var. *circinata*

Susceptible Species: Found on *Poa annua* in the UK currently, but originated in Japan on bentgrass.

The fungus *Waitea circinata* var. *circinata* causes the development of tan/yellow - brown rings on cool season turf from late spring to late summer when temperatures reach approx. 16C. It is often referred to as a *Rhizoctonia*-like fungus due to its formal classification and the ‘typical’ *Rhizoctonia* mycelium appearance under the microscope.

The symptoms tend to develop more severely under conditions of low nutrition and on turf maintained under moisture stress. In the UK, symptoms have so far only been seen on *Poa* turf, but *Agrostis* has also been recorded as being susceptible to this disease.



The symptoms appear very similar to those of superficial fairy rings but the typical fairy ring smell is not present in turf affected by this disease. The fungal mycelium tends to develop rapidly around the leading edge of the symptoms following overnight incubation of a turf sample under humid conditions.

Disease development can be minimized by maintaining adequate rootzone moisture and nitrogen input and where the disease is expected (or following initial symptom development) weekly applications of low amounts of nitrogen can significantly reduce severity of the disease. Fungicide applications may be required as part of the management programme and DMI fungicides have been shown (through US research) to provide good long term control although if applied alone, they may take a while to kick in.

Applying combined products should provide good initial control of the symptoms and lasting control of disease development.

Waitea Patch

*Non-Pesticidal
Waitea Patch
prevention*

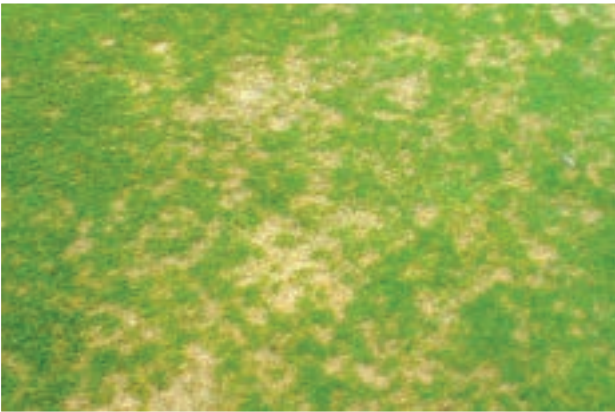


Dollar Spot

Pathogen: *Clarireedia homoeocarpa* (formerly *Sclerotinia homoeocarpa*)

Susceptible Species: This turfgrass disease can affect all species of turfgrass, including but not limited to Kentucky bluegrass, fine fescues, perennial ryegrass, bentgrasses and *Poa annua*. However, it most frequently affects closely mown turf, such as that found on golf courses

However, there is on-going debate as to whether the causal fungus for Dollar Spot outside the US is the same organism and therefore we will continue to use the name *Sclerotinia homoeocarpa* for the fungus that causes Dollar Spot on turf across the EU. Historically Dollar spot was considered to be a disease of slender creeping red fescue, but across Europe it is recorded as causing damage to most turf species (especially bentgrasses) and it now appears likely that different fungi will be named for causing the disease in cool and warm season turf.



Although Dollar Spot has long been recognised as a turfgrass disease, the fungus (or fungi) that cause the disease is (are) still being investigated. Researchers at Rutgers University, New Jersey, have recently renamed the fungus that causes Dollar Spot in turf across the US as *Clarireedia homoeocarpa*. However, there is on-going debate as to whether the causal fungus for Dollar Spot outside the US is the same organism and therefore we will continue to use the name *Sclerotinia homoeocarpa* for the fungus that causes Dollar Spot on turf across the EU.

Historically Dollar spot was considered to be a disease of slender creeping red fescue, but across Europe it is recorded as causing damage to most turf species (especially bentgrasses) and it now appears likely that different fungi will be named for causing the disease in cool and warm season turf.

Dollar Spot

*Non-Pesticidal
Dollar Spot
prevention*



Navigating the New Era of Turfgrass Management

The turf industry, in recent times, stands at an unprecedented crossroads. Traditionally fuelled by innovations, best practices, and a drive to achieve that immaculate green carpet, today's turf landscape is reshaped by a potent mix of environmental awareness, climate change challenges, governmental regulations, and innovations.

The days of unbridled chemical usage and resource-intensive practices are waning, giving rise to an era where sustainable turfgrass management is no longer just a buzzword but an imperative. Sustainability in this context refers to methods that maintain and enhance turf quality whilst ensuring that the processes involved are environmentally friendly, resource-efficient, and in harmony with nature.



Joshua Thomason BSc (Hons)
Technical Manager

With the spectre of climate change looming large, there's a renewed understanding that our industry isn't just about catering to the aesthetics and demands of sports enthusiasts but also about playing a pivotal role in ecological balance. Unpredictable weather patterns, water scarcity, and heightened disease pressures are some challenges climate change thrusts upon turf professionals. However, the industry's response has been commendable, pivoting towards practices that reduce carbon footprints, optimise water use, and prioritise organic and natural solutions over synthetic, chemical-laden alternatives. The regulatory environment, too, is evolving. Governments worldwide are becoming increasingly stringent about chemical applications in turf management, spurred by environmental concerns and the pressing need to combat climate change.

Sustainable Turfgrass Management: The Connection of the Environment and Playability

Sustainable turfgrass management is the art of maintaining sports turf and golf courses by harmonising both environmental responsibility and the high playability standards demanded by sports enthusiasts. It's akin to a tightrope walk where professionals strive to create pristine green carpets for play, all while treading lightly on our Earth's resources. The underlying ethos here is to utilise sustainable practices such as water conservation, reduced chemical inputs, and use of organic products, which is paramount, requiring a judicious balance of nutrients without reducing the performance parameters of the playing surfaces but minimises the environmental footprint, marrying the world of elite sportsturf management with the noble pursuit of sustainable stewardship.

Navigating the challenges of turfgrass management isn't a walk in the park. The main issues facing professionals in this field span a gamut of concerns, with water scarcity and quality at the forefront. Efficient irrigation systems, drought-resistant grass varieties, and rainwater harvesting techniques are all integral to the modern superintendent's toolkit. Then there's the conundrum of pests and diseases; the key here is to pivot from reactive chemical applications to proactive, holistic and synergistic strategies that emphasise turf health and soil health to build a more resilient defence for turfgrass and soil biology. Sustainable turfgrass management is the delicate balance of intertwining sports aesthetics with sustainable sensibilities, demanding expertise and passion from those at the helm.

The Rise of Non-Fungicidal Solutions

As the global conversation shifts towards sustainable practices, the industry, too, is recalibrating its approach. The shift is twofold: one, to reduce the chemical footprint on the environment and second, in response to tighter governmental regulations that are curbing the indiscriminate use of chemical fungicides. This move towards non-fungicidal solutions isn't just a regulatory response; it's also a nod to the increasing public awareness and demand for more eco-friendly sports and recreational spaces.

AGS provides a range of non-fungicidal products such as phosphite, salicylic acid, iron, and citric acid to microbial inoculants, biostimulants and dew suppressants. These are best used in preventative scheduling but can be used in a reactive approach. Especially when suppressing disease.



Soil Health: The Bedrock of Exceptional Turfgrass Management

At the heart of every perfectly manicured golf green and at every resilient sports field lies one foundational element: soil health. Soil isn't just 'dirt'; it's a vibrant ecosystem teeming with microorganisms, nutrients, and organic matter that collectively determine the vitality of the grass above. As we rely on a balanced diet for optimal health, turfgrass thrives when its underlying soil is balanced and robust. Understanding soil health equips professionals in the turf industry with the knowledge to select the best products and practices, ensuring not only pristine playing surfaces but also a sustainable approach that benefits the environment.

A notable advancement in sustainable turfgrass management is using microbial inoculants like Companion and organic products like Sustane. These products introduce beneficial microbes into the soil or provide organic nutrients. When using microbial inoculants, it's

paramount to ensure the soil conditions are conducive for these beneficial microbes to thrive. This often means maintaining proper soil moisture, ensuring optimal pH levels, and avoiding the overuse of chemical pesticides that might harm these microbial allies. As for organic products like Sustâne, their gradual nutrient release ensures the turf receives sustained nourishment without the sudden surges associated with synthetic fertilisers, reducing the risk of nutrient runoff and other environmental impacts.

In essence, the journey towards impeccable turf begins below the surface. By prioritising soil health and adopting best practices with products like microbial inoculants and organic nutrients, turf professionals elevate the standard of their greens and sports fields and reaffirm their commitment to sustainable turfgrass management. This holistic approach guarantees a win-win scenario: exceptional playability and environmental stewardship.

Predictive Disease Modelling: The Crystal Ball of Turf Health

Predictive disease modelling, in the context of turfgrass management, is akin to a weather forecast but for turf diseases. Instead of predicting rain or sunshine, it anticipates the likelihood of turf diseases. This digital crystal ball is powered by data, analysing past and present conditions to forecast potential disease outbreaks. By leveraging this model, those in golf course and sportsturf management can proactively address disease threats before they manifest visibly. This pre-emptive approach epitomises the ethos of sustainable turfgrass management, enabling the reduction of excessive chemical applications, and safeguarding both the environment and the chemical budget.

Historically, turf professionals would react to disease after its onset, sometimes leading to overcompensation with chemicals or treatments. Predictive disease modelling turns this paradigm on its head, offering a proactive shield. By foreseeing potential outbreaks, managers can apply targeted treatments, bolster turf health in vulnerable areas, and employ preventative practices that stave off diseases. The results? Healthier grass, minimised chemical usage, and a stride towards more sustainable and resilient playing surfaces.



Minimum Levels for Sustainable Nutrition (MLSN)

The Minimum Levels for Sustainable Nutrition (MLSN) approach is a groundbreaking strategy in turfgrass management. At its core, the MLSN guidelines offer a compass to navigate the often complex world of soil nutrition, pinpointing the lowest nutrient levels a soil can have before it risks the health and vitality of the turf. Think of it as a financial safety net for your bank account; just as you'd want to maintain a certain balance to avoid overdrafts, the MLSN guidelines ensure the soil has a "nutrient safety net" to foster healthy, resilient grass. MLSN isn't merely a set of numbers; it embodies sustainable turfgrass management principles and their potential. By adhering to these benchmarks, golf course and sportsturf management professionals can make more informed, sustainable fertiliser decisions applying only what's needed, thereby reducing waste, cost, and environmental impact.

Clip Volume: A Sustainable Insight into Turf Health

In the turf management world, understanding grass growth is paramount, and one of the most insightful metrics in this pursuit is "clip volume". Clip volume quantifies the amount of grass clippings produced after a mowing session. This measure is a reliable barometer of turf growth and, by extension, its current nitrogen consumption. As we all know, nitrogen is a cornerstone nutrient in turfgrass vitality, directly influencing its health, colour, and vigour. By gauging clip volume, professionals can more accurately decipher the turf's nitrogen needs, ensuring neither an excess nor a deficit, which can have detrimental effects.

In the high-octane football world, the pitch is more than just a playing field—it's a stage. Sportsturf professionals ensure this stage remains pristine, safe, and consistent. Here's where clip volume's relevance can be implemented. By monitoring this metric, groundsman can precisely predict and adjust nitrogen application, ensuring the turf retains a consistent growth rate. This practice guarantees optimal playing conditions and sidesteps the wasteful over-application of fertilisers. Over time, this sustainability-focused approach translates to economic savings and a reduced environmental footprint.

With its sprawling greens and meticulous design, the golf course demands a more nuanced approach. Golfers seek consistency—both in the colour and playability of the turf. Relying on clip volume, golf course managers can fine-tune their nitrogen application, preserving the aesthetic charm of the course while maintaining the desired green speed. Beyond the immediate visual and play benefits, there's an underlying environmental responsibility. By calibrating nitrogen inputs based on actual turf growth, golf courses can minimise nutrient runoff, embodying the spirit of sustainable golf course management.

For those of us in the professional turf industry, clip volume is more than a measure. It's a testament to our commitment to blending turfgrass management with stewardship.

Successful Programmes

Golf Tournament Prep Programme				
Timing	Product mix	Water Rate/ Application Rate	Nozzle Selection/ Spreader Setting	Notes
3 weeks prior	10l/ha Essential + 4l/ha Companion	600l	Coarse nozzles, root drench	Root stimulant, stress reliever & disease prevention
2 weeks prior	20l/ha Classic 18.0.6 + 4l/ha TKO Phosphite	300l	Fine nozzles, foliar target	Slow release nutrition & stress relief
1 week prior	10l/ha HydroSmart NG	600l	Coarse nozzles, root drench	Moisture control
5 days prior	10l/ha Essential + 4l/ha Companion	600l	Coarse nozzles, root drench	Root stimulant, stress reliever & disease prevention
3 days prior	20l/ha Xtra Iron + 10l/ha pH Reducer	300l	Fine nozzles, foliar	Healthy colour and disease prevention

Thatch Reduction Programme				
Timing	Product mix	Water Rate/ Application Rate	Nozzle Selection/ Spreader Setting	Notes
Spring	Sustane 4.6.4	35g/m ²	Accupro Double Pass Cone 7, N	Enhance and build indigenous soil microbial population
June	225g/ha Residue Complete + 10l/ha Essential	600l	Pencil tine before. Coarse nozzles, root drench	Thatch degrading bacteria & enzymes with a microbial food
July	225g/ha Residue Complete + 10l/ha Essential	600l	Pencil tine before. Coarse nozzles, root drench	Thatch degrading bacteria & enzymes with a microbial food
August	225g/ha Residue Complete + 10l/ha Essential	600l	Pencil tine before. Coarse nozzles, root drench	Thatch degrading bacteria & enzymes with a microbial food
September	Sustane 5.2.4 +Fe	35g/m ²	Accupro Double Pass Cone 7, N	Nutrition, disease prevention and microbial food source

*Maintain healthy nutrition throughout as required with Growth Products slow-release fertilisers

Anthracnose Prevention Programme				
Timing	Product mix	Water Rate/ Application Rate	Nozzle Selection/ Spreader Setting	Notes
Early Spring	Sustane 4.6.4	35g/m ²	Accupro Double Pass Cone 7, N	Enhance and build indigenous soil microbial population
May - July	20l/ha K-Builder 7.2.21 every 2 weeks. Add 4l/ha TKO Phosphite monthly.	300l/ha	Fine nozzles, foliar target	Slow-release N, low salt potassium & phosphite all reduce summer turf stress
May - July	10l/ha Essential + 4l/ha Companion monthly	600l/ha	Pencil tine before. Coarse nozzles, root drench	Healthy, balanced microbial food source plus beneficial bacteria reduce diseases
Late July	1ltr/ha Plazma	300l/ha	Coarse nozzles, root drench	Preventative fungicide
August	Sustane 5.2.4 +Fe	35g/m ²	Accupro Double Pass Cone 7, N	Nutrition, disease prevention and microbial food source

Overseeding Programme (Bent/Fescue into mixed Poa sward)

Timing	Product mix	Water Rate/ Application Rate	Nozzle Selection/ Spreader Setting	Notes
4 weeks prior	20l/ha Classic 18.0.6 + 0.4ltrs/ha Primo Maxx II	300l/ha	Fine nozzles, foliar target	Slow release nutrition & growth regulator to slow Poa growth
1 week prior	10l/ha Classic 18.0.6 + 0.4l/ha Primo Maxx II	300l	Fine nozzles, foliar target	Slow release nutrition & growth regulator to slow Poa growth
Overseeding	Advance Mycorrhizal Inoculant	50g/m ²	Accupro Double Pass Cone 4, N	Beneficial fungi that promotes growth of perennial grasses and not Poa
2 weeks after	20l/ha Classic 18.0.6 + 10l/ha Essential	300l/ha	Fine nozzles, foliar target - irrigate once leaf has dried	Slow release nutrition & microbial food source

Autumn Microdochium Prevention Programme

Timing	Product mix	Water Rate/ Application Rate	Nozzle Selection/ Spreader Setting	Notes
Growing Season	Apply only enough nutrition for required growth. Maintain soil health. Reduce thatch build up.			
Late August	5.2.4+Fe	35g/m ²	Accupro Double Pass Cone 7, N	Nutrition, disease prevention and microbial food source
Sept - Dec Monthly	10l/ha Essential + 8l/ha Companion	600l/ha	Coarse nozzles, root drench	Healthy, balanced microbial food source plus beneficial bacteria reduce diseases
Sept - Oct Every 2 weeks	20l/ha Classic 18.0.6 + 2l/ha TKO Phosphite	300l/ha	Fine nozzles, foliar target	Slow-release nutrition & phosphite for plant resistance
Nov - Dec Every 2 weeks	10l/ha X-Xtra Iron + 10l/ha pH Reducer	300l/ha	Fine nozzles, foliar target	Iron & citric acid to stop disease spread and dry leaf out
Oct - Dec Every 2 weeks	10l/ha Leaf Guard	600l/ha	Fine nozzles, foliar target	Stop dew formation that leads to disease ingress





COMPANION

What is Companion?

Companion is a broad spectrum microbial inoculant designed to improve overall plant growth and increase root mass by protecting the roots and stimulating new growth.

Companion's fast colonizing beneficial rhizobacteria, *Bacillus subtilis* GB03, produce powerful enzymes and auxin-like metabolites which stimulate root growth, increase nutrient uptake and promote turf vigour, and make plants less vulnerable to invading pathogens by increasing the diversity of beneficial microbes.

Multiple Modes of Action

- Directly competes against soil-borne pathogens by quickly colonizing a plant's root hairs with beneficial bacteria, creating a 'shield' to protect plants.
- Produces strong metabolites that make the root hair environment hostile to other bacteria and fungi.
- Creates a highly beneficial Induced Systemic Resistance (ISR) by stimulating the plant's phytohormones and natural immune system to better resist stress.
- Acts as a Plant Growth Promoting Rhizobacterium (PGPR) that stimulates rooting and better overall growth.
- Contains gram-positive (spore forming) bacteria which survive in even extreme environmental conditions including heat and drought, making it a durable and reliable product that turf managers can trust.
- Rich organic solution acts as a food source to help the *Bacillus subtilis* multiply and establish colonies.

Cultural Management

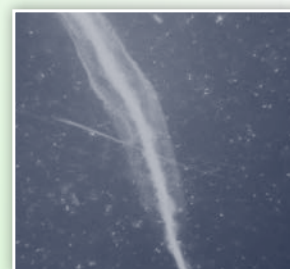
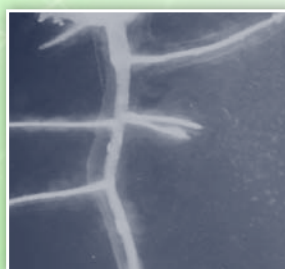
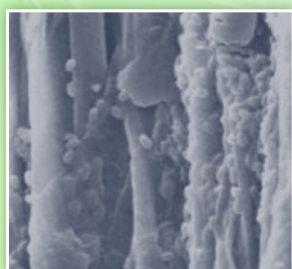
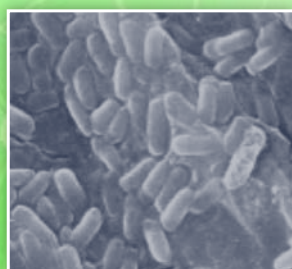
As a 100% natural and organic microbial inoculant, Companion® is an important tool in a turf manager's Integrated Pest Management (IPM) Programme. By populating the soil with these beneficial bacteria, resistant pathogens are less likely to occur as with chemical fungicide products. Companion's multiple and unique modes of action inhibit the pathogen's ability to develop resistance.

Easy to use, store and handle, Companion can be tank mixed with most fertilisers, micronutrients, wetting agents, contact and systemic fungicides.

Companion is most effective when applied prior to the onset of environmental stresses. Can be used in combination and rotation with preventative and curative fungicides.

Pack Size	Application Rate	
4ltrs	Root Drench 4-8ltrs/ha	300ltrs/ha

Usage Period												
Analysis	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.3.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



Dedicate



MAPP No: 17033

Contains 200 g/L Tebuconazole and 100 g/L trifloxystrobin



Dedicate is a contact and systemic turf fungicide, utilising two powerful active ingredients providing broad spectrum disease control from the DMI group of chemistry.

This combination stops spore germination fast and prevents the spread of disease from leaf to leaf.

Dedicate is rapid acting with results within two weeks of application, is long-lasting and can be used all year round with up to 4 applications a year. It both prevents and cures fusarium patch (*Microdochium nivale*), red thread (*Laetisaria fuciformis*), dollar spot (*Sclerotinia homoeocarpa*), anthracnose (*Colletotrichum graminicola*) and rust (*Puccinia cynodontis*) for use in managed amenity turf.

Dedicate can be applied to all turf areas including golf courses, commercial and residential lawns, sports fields, parks, bowls greens, cricket pitches and municipal grounds. It comes in a 250ml container making it a more economical purchase when compared to alternative brands.

- Co-formulation utilising two powerful active ingredients; tebuconazole and trifloxystrobin
- Tank mix with liquid feeds and turf hardeners for enhanced efficacy
- Broad spectrum control - Fusarium, Dollar Spot, Red Thread, Anthracnose and Rust
- Low dose rate, up to four applications per year.



Product	Pack Size	Rate	Water Volume
Dedicate	250ml	1ltr/ha	400-500ltrs

Usage Period

J	F	M	A	M	J	J	A	S	O	N	D
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Insignia



MAPP No: 19403

Contains 200g/l pyraclostrobin



Insignia® is a local penetrant fungicide containing the active substance, pyraclostrobin.

Insignia® provides an effective protective action against a range of turf diseases. Its translaminar movement across the leaf blade means that the leaf is protected on both surfaces and inside the leaf. Pyraclostrobin targets more stages of a fungal pathogen's life cycle than other strobilurin fungicides such as azoxystrobin.

It provides effective protection against spore germination, penetration, mycelium growth, and against sporulation.

Insignia® is rainfast within 1 hour of application and works consistently even at cooler temperatures. In addition to its fungicidal activity, the Intrinsic® effect from Insignia® applications helps plants to resist disease attacks, withstand abiotic stresses, and grow more effectively.

- Excellent tool in cold temperature disease prevention
- Protective action against a range of turf diseases
- Active against multiple life stages of the pathogen
- Rainfast within 1 hour
- Tank mix with turf hardeners to enhance efficacy



Product	Pack Size	Rate	Water Volume
Insignia	250g	1.25kg/ha	200-300ltrs

Usage Period

J	F	M	A	M	J	J	A	S	O	N	D
✓	✓	✓	✓	✓				✓	✓	✓	✓

Medallion

MAPP No: 15287

Contains 125g/l fludioxonil



Medallion® SC fungicide is formulated as a liquid suspension concentrate for easier handling and flexible mixing. Its naturally occurring active ingredient (fludioxonil) explodes fungal spores on the leaf, in the thatch and beneath the soil surface.

The suspension concentrate formulation delivers reliable, broad spectrum control of several key turf diseases including Fusarium Patch (*Microdochium nivale*), Leaf Spot (*Drechslera* spp.) and Anthracnose (*Colletotrichum graminicola*).

The fast action targets turf disease pathogens in cool weather situations offering a valuable opportunity to clean up disease and proven to give long-lasting protection from late autumn to early spring.

Medallion TL offers an exciting opportunity to provide outstanding high levels of disease control and exceptional long-lasting results from a modern bio-inspired fungicide that offers innovative Contact+ activity.

- Powerful active with outstanding disease control and exceptional long term results.
- Rainfast in one hour
- Bio-inspired by naturally occurring soil organisms which stop fungi developing
- Maximum of 4 applications per year



Product	Pack Size	Rate	Water Volume
Medallion	3ltr	3ltrs/ha	125-500ltr/ ha

Usage Period

J	F	M	A	M	J	J	A	S	O	N	D
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Plazma

MAPP No: 19416

Contains 250 g/l azoxystrobin



Plazma is a powerful, high performance, broad spectrum fungicide for the control of disease in managed amenity turf.

It contains 250g per litre of the active ingredient Azoxystrobin, making it one of the strongest, broad spectrum professional turf fungicides on the market.

Azoxystrobin is known to target a wide variety of turf diseases including Fusarium Patch, Take-All Patch, Brown Patch, Leaf Spot, Rust Diseases, Fairy Rings and Anthracnose.

Plazma has systemic control of a wide range of turf diseases, with protectant action. It is ideal in high humidity conditions such as stadiums to prevent the spread of Dollar Spot.

It moves within the grass plants and protects new growth from the ingress of disease.

- Easy to use Plazma Formulation; can be used in boom sprayer or knapsack
- Active Ingredient Recycling
- Fast acting & long lasting with rainfast properties.
- Cost Effective 1L Bottle
- 250g per litre Azoxystrobin
- Manufactured by Nufarm, a leading manufacturer of crop protection products for the past 100 years.



Product	Pack Size	Rate	Water Volume
Plazma	1ltr	1ltrs/ha	500ltr/ha

Usage Period

J	F	M	A	M	J	J	A	S	O	N	D
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Instrata Elite

MAPP No: 17976

**Contains 80.3g/l fludioxonil
& 80.3g/l difenoconazole**

Instrata Elite is a co-formulation containing fludioxonil and difenoconazole.

This combination of two active ingredients gives reliable turf protection inside and outside the plant. The complimentary actions of the two active ingredients help tackle disease effectively.

Fludioxonil targets disease spores in the thatch as well as on the plant. Difenoconazole will fix onto the waxy cuticle and slowly release into the leaf itself to provide ongoing protection.

- Very effective when applied as a preventative
- Rainfast within 30 minutes of application
- Optimum use period in mid/late autumn and early spring
- Some curative action to reduce symptoms when plant is already infected



Ascernity

NEW
PRODUCT

MAPP No: 19544

**Contains 23.6g/l
benzovindiflupyr & 78.8
g/l difenoconazole**

Ascernity is a broad-spectrum foliar fungicide with both contact and systemic properties for moderate control of Fusarium Patch (*Microdochium nivale*) and a reduction in levels of Dollar Spot (*Sclerotinia homoeocarpa*) and Anthracnose (*Colletotrichum graminicola*). It is approved for use on greens and tees of golf courses and enclosed sports turf surfaces in the UK.

Ascernity can be safely applied at any stage of turf growth, from the two leaf stage onwards. Over 80 trials in 9 countries have been carried out on a range of cultivars of all key turf species. These trials have shown no phytotoxicity effect when Ascernity is used after the two leaf stage.

- Broad spectrum control of microdochium patch, anthracnose and Dollar Spot
- Contains Solatenol + Difenoconazole
- Natural origins - ideal for ITM programmes
- Maximum of 2 applications per year



Product	Pack Size	Rate	Water Volume
Instrata Elite	3ltr	3ltrs/ha	125-500ltrs/ha

Usage Period											
J	F	M	A	M	J	J	A	S	O	N	D
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Product	Pack Size	Rate	Water Volume
Ascernity	3ltr	3ltrs/ha	125-500ltrs/ha

Usage Period											
J	F	M	A	M	J	J	A	S	O	N	D
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	



Fungicide Tank Mixes

Microdochium prevention: - Maintaining sensible nutrition levels and optimum plant health coming into stress periods will help reduce disease outbreaks. Use Sustane composted organics and high quality biostimulants, such as Essential Plus, to build healthy soils that offer maximum plant health. This will reduce disease infection prior to the high pressure seasons. TKO Phosphite is a well-researched and proven method of microdochium reduction and X-Xtra Iron assists this process with it's very low pH of 1.5 to prevent pathogen populations expanding. Cal Mag Max contains elevated calcium and magnesium for cell wall strength and good winter colour. Fulvic Acid is an organic complexing agent which assists the uptake and movement of products around the leaf – particularly useful in times of low temperature and light when plants struggle to metabolise efficiently.

Microdochium preventative tank mixes:

Mix 1: Summer Stress

Products	Rate	Water Volume	Timing											
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Plazma	1l/ha	300 - 400l/ha					✓	✓	✓	✓	✓	✓		
Companion	4l/ha													
Solunar	20l/ha													

*Labelled for control and prevention of waitea patch, thatch fungus and fairy ring.

Mix 2: All Rounder

Products	Rate	Water Volume	Timing											
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Dedicate	1l/ha	400l/ha												
X-Xtra Iron	20l/ha				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
pH Reducer	20l/ha													

Mix 3: Spring & Autumn

Products	Rate	Water Volume	Timing											
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Dedicate	1l/ha	400 - 500l/ha												
X-Xtra Iron	10l/ha				✓	✓	✓				✓	✓	✓	✓
pH Reducer	10l/ha													
TKO Phosphite	4l/ha													

Mix 4: Winter Special

Products	Rate	Water Volume	Timing											
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Insignia	1.25g/ha	400l/ha												
X-Xtra Iron	20l/ha		✓	✓								✓	✓	
pH Reducer	10l/ha													
Fulvic Acid	5l/ha													

Microdochium curative tank mixes:

Mix 5: Cure & Repair

Products	Rate	Water Volume	Timing											
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Instrata Elite	3l/ha	400l/ha												
X-Xtra Iron	20l/ha				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Essential	4l/ha													
Ignition	20l/ha													

Anthracoze prevention: - Research suggests that light and frequent top dressing can build protection around the crown of the plant to help prevent serious damage from anthracnose infection. There is also evidence that increasing the potassium content of the leaf tissue significantly reduces anthracnose development. STRI trials showed a significant reduction in disease when Sustane 5-2-4 was applied before the onset of summer stress. Use a combination of cultural top dressing practices combined with the use of targeted low salt fertilisers like Sustane 5-2-4 and Pot Carb Max 0-0-25, to prevent disease developing. Good quality biostimulants such as Essential Plus will always be beneficial in reducing stress, which is a big factor in anthracnose development.

Anthracoze preventative mixes:

Mix 6: Two-pronged defence

Products	Rate	Water Vol	Timing													
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
Sustane 5.2.4	35g/m ²	400l/ha														
Plazma	1ltr/ha					✓	✓	✓	✓	✓	✓					
Pot Carb Max 0.0.25	30l/ha															

Mix 7: An Essential mix

Products	Rate	Water Volume	Timing													
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
Dedicate	1l/ha	400l/ha														
Essential Plus	20l/ha					✓	✓	✓	✓	✓	✓					

Essential Plus has been found to be highly effective in reducing stress and disease symptoms all year round under UK conditions. Use as part of a structured programme to boost soil microbial populations, feed beneficial fungi and increase the competitiveness of perennial grass species. Field trials have also shown that nematode stress symptoms can be alleviated very quickly with a targeted application of Essential Plus, leading to greener turf and stimulated root growth in as little as one week. Essential Plus is not a nematicide – it improves plant and soil health to create conditions of very low plant stress which enable the plant to naturally fight off pathogens and plant parasitic nematodes.

Leaf Spot Curative mix:

Leaf Spot is associated with leaf wetness and humid atmosphere and is often a problem in stadia where heavy shade and lack of air movement heightens disease pressure. X-Xtra Iron helps prevent injury through a combination of pH reduction and 'drying' the leaf to reduce further spread of infection.

Mix 8: Stadium Special

Products	Rate	Water Volume	Timing													
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
Dedicate	1 l/ha	400 - 500l/ha														
X-Xtra Iron	30l/ha		✓	✓	✓	✓	✓				✓	✓	✓	✓		

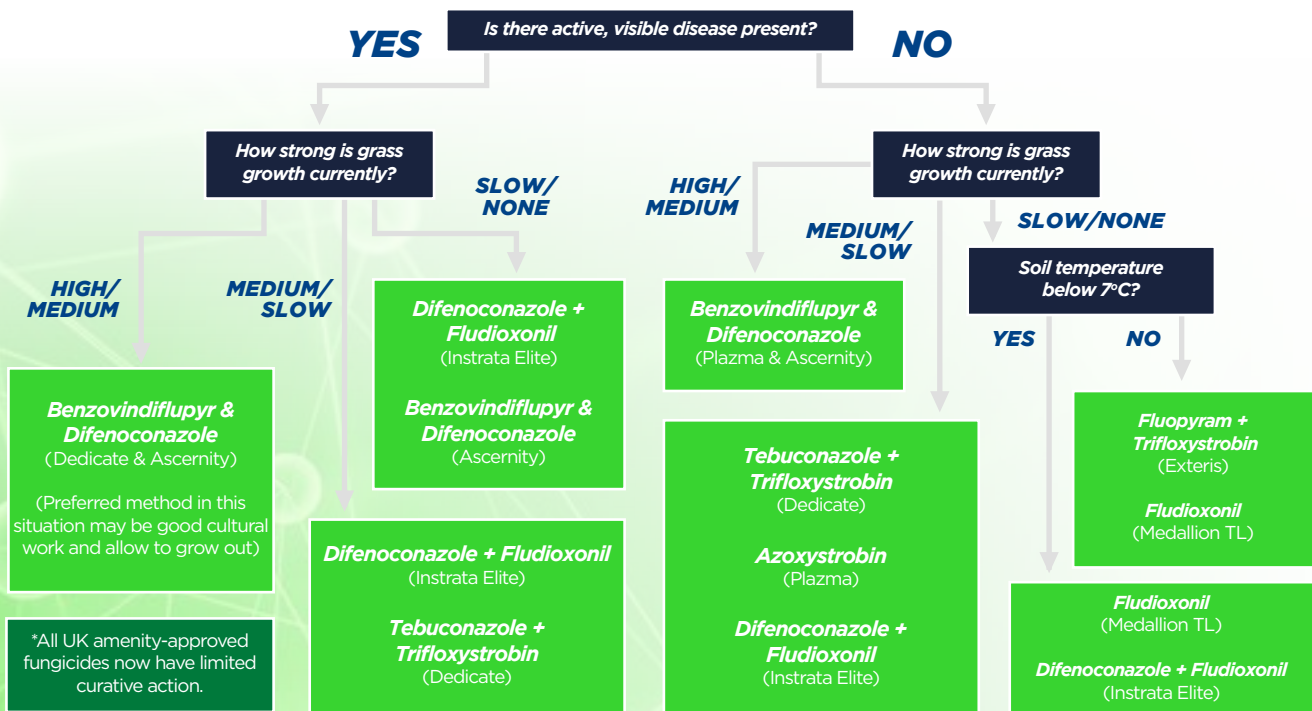
These recommendations are produced in good faith as a guide only. Always read the product label before tank-mixing. It is good practice to jar test any tank mix when used for the first time to ensure it is suitable for your individual circumstances. When a product is used in a mixture not specifically recommended by the product manufacturer, it is at the user's risk. Please speak to your Regional AGS Amenity Specialist to ensure you are using the best products for your situation.

Plant Protection Product Selector

Fungicide	Mode of Action	Anthrac-nose	Brown Patch	Dollar Spot	Fairy Ring	Leaf Spot	Gray Leaf	Micro-dochium	Rust	Red Thread	Take-all
Ascernity	Systemic	✓		✓			✓	✓	✓	✓	
Dedicate	Systemic	✓	✓		✓	✓		✓	✓		✓
Plazma	Systemic	✓	✓		✓	✓	✓	✓	✓		✓
Medallion	Contact	✓						✓			
Insignia	Mesotemic	✓	✓	✓		✓		✓			
Instrata Elite	Contact Systemic	✓	✓	✓			✓	✓			

*Always read the product label and follow specific instructions before using any plant protection product

Fungicide Selection Chart for Microdochium



- Initiate an IPM programme to minimise use of fungicides.
- Rotate different fungicide GROUPS to minimise resistance issues.
- This is a guide only. If in doubt, please consult your AGS regional technical representative for the best advice on disease identification, prevention and cure.

Tank Mix Chart

Important: This chart is produced in good faith as a guide only. Always read the product label before tank-mixing. It is good practice to jar test any tank mix when used for the first time to ensure it is suitable for your individual circumstances. When a product is used in a mixture not specifically recommended by the product manufacturer, it is at the user's risk.

CHEMICALS	Classic 18-0-6	TKO Phosphite	Companion	Essential Plus	pH Reducer	Sodium Knockout	BioBoost	K Builder 7-2-21	X-Xtra Iron	Sil-Guard	Residue	Yara Soluble Fertilisers	Yara Liquid Fertilisers	Quick Response 20-3-3	Pot Carb Max 0-0-25	Nitro 22	Cal Mag Max
Primo Maxx II	300 ←	300 ←	300 ↑	300* ←	300 ↑	300* ←	⊗	300 ←	300 ↑	300 ←	⊗	300 ←	300 ←	300 ←	300 ←	300 ←	300 ←
Relay Turf Elite	300 ↑	300 ↑	⊗	300* ↑	300 ↑	300* ↑	⊗	300 ←	300 ↑	⊗	⊗	300 ↑	300 ↑	300 ←	300 ←	300 ←	300 ↑
Instrata Elite	125-500 ←	125-500	125-500	125-500	125-500	125-500*	⊗	125-500	125-500	125-500	⊗	125-500	125-500	125-500	125-500	125-500	125-500
Insignia	3-400 ←	3-400 ←	3-400 ↑	3-400* ↑	3-400 ↑	3-400* ↑	⊗	3-400 ←	3-400 ↑	3-400 ←	⊗	3-400 ←	3-400 ←	3-400 ←	3-400 ←	3-400 ←	3-400 ←
Medallion	2-500 ←	2-500 ↑	2-500 ↑	2-500* ↑	2-500 ↑	2-500* ↑	⊗	2-500 ←	2-500 ↑	2-500 ←	⊗	2-500 ←	2-500 ←	2-500 ←	2-500 ←	2-500 ←	2-500 ←
Plazma	3-400 ←	3-400 ←	3-400 ↑	3-400* ↑	3-400 ↑	3-400* ↑	⊗	3-400 ←	4-500 ↑	3-400 ←	3-400* ↑	3-400 ←	3-400 ←	3-400 ←	3-400 ←	3-400 ←	3-400 ←
Dedicate	4-500 ←	4-500 ←	4-500 ←	4-500* ↑	4-500 ↑	4-500* ↑	⊗	4-500 ←	4-500 ↑	4-500 ←	⊗	4-500 ←	4-500 ←	4-500 ←	4-500 ←	4-500 ←	4-500 ↑

NUTRITION & BIOSTIMULANTS	Classic 18-0-6	Quick Response 20-3-3	TKO Phosphite	Companion	Essential Plus	Cal Mag Max	pH Reducer	Sodium Knockout	BioBoost	K Builder 7-2-21	X-Xtra Iron	Sil-Guard	Residue	Yara Soluble Fertilisers	Yara Liquid Fertilisers	Pot Carb Max 0-0-25
Classic 18-0-6		300 ←	300 ↑	3-600 ↑	3-600 ↑	300 ↑	300 ↑	3-600* ↑	3-600* ↑	300 ←	300 ↑	300 ←	3-600* ↑	3-600 ↑	300 ↑	300 ←
Quick Response 20-3-3	300 ↑		300 ↑	3-600 ↑	3-600 ↑	300 ↑	300 ↑	3-600* ↑	3-600* ↑	300 ←	300 ↑	300 ←	3-600* ↑	3-600 ↑	300 ↑	300 ←
TKO Phosphite	300 ←	300 ←		3-600 ↑	3-600* ↑	300 ↑	300 ↑	⊗	3-600* ↑	300 ←	300 ↑	300 ←	3-600* ↑	3-600 ↑	300 ↑	300 ←
Companion	3-600 ←	3-600 ←	3-600 ←		600 ←	3-600 ←	3-600 ←	600 ←	⊗	3-600 ←	3-600 ←	3-600 ←	600 ←	3-600 ←	3-600 ←	3-600 ←
Essential Plus	3-600* ↑	3-600* ↑	3-600* ↑	600 ↑		3-600* ↑	600 ↑	600 ↑	600 ↑	3-600* ↑	3-600* ↑	⊗	600 ←	3-600* ↑	3-600* ↑	3-600 ←
Cal Mag	300 ←	300 ←	300 ←	3-600 ↑	3-600 ↑		300 ↑	⊗	300 ↑	3-600 ←	300 ↑	3-600 ←	3-600* ↑	300 ←	300 ←	300 ←
pH Reducer	300 ←	300 ←	300 ←	3-600 ↑	600 ←	300 ←		600 ←	600 ←	300 ←	300 ←	300 ←	600 ←	3-600 ←	3-600 ←	3-600 ←
Sodium Knockout	3-600* ↑	3-600* ↑	⊗	600 ↑	600 ↑	⊗	600 ↑		600 ↑	3-600* ↑	⊗	⊗	600 ←	3-600* ↑	3-600* ↑	3-600* ↑
BioBoost	3-600* ↑	3-600* ↑	3-600* ↑	⊗	600 ←	3-600* ↑	600 ↑	600 ←		3-600* ↑	3-600 ↑	⊗	⊗	3-600* ↑	3-600* ↑	3-600* ↑
K Builder 7-2-21	300 ↑	300 ↑	300 ↑	3-600 ↑	3-600* ↑	300 ↑	300 ↑	3-600* ↑	3-600* ↑		300 ↑	300 ↑	3-600* ↑	3-600 ↑	3-600 ↑	300 ←
X-Xtra Iron	300 ←	300 ←	300 ←	3-600 ↑	3-600* ↑	300 ←	300 ↑	⊗	3-600* ↑	300 ←		⊗	3-600* ↑	3-600 ←	3-600 ←	300 ←
Sil-Guard	300 ↑	300 ↑	300 ↑	3-600 ↑	⊗	300 ↑	300 ↑	⊗	⊗	300 ←	⊗		⊗	⊗	⊗	⊗
Residue	3-600* ↑	3-600* ↑	3-600* ↑	600 ↑	600 ↑	3-600* ↑	600 ↑	600 ↑	⊗	3-600* ↑	3-600* ↑	⊗		3-600* ↑	3-600* ↑	3-600* ↑
Yara Soluble Fertilisers	3-600 ←	3-600 ←	3-600 ←	3-600 ↑	3-600* ↑	3-600 ↑	3-600 ↑	3-600* ↑	3-600* ↑	3-600 ←	3-600 ↑	⊗	3-600* ↑		3-600 ←	3-600 ←
Yara Liquid Fertilisers	3-600 ←	3-600 ←	3-600 ←	3-600 ↑	3-600* ↑	3-600 ↑	3-600 ↑	3-600* ↑	3-600* ↑	3-600 ←	3-600 ↑	⊗	3-600* ↑	3-600 ↑		3-600 ←
Pot Carb Max 0-0-25	300 ↑	300 ↑	300 ↑	3-600 ↑	3-600 ↑	300 ↑	3-600 ↑	3-600* ↑	3-600* ↑	300 ↑	300 ↑	⊗	3-600* ↑	3-600 ↑	3-600 ↑	

400 Can be tank-mixed at 400l/ha water volume, **400*** Can be tank-mixed at 400l/ha water volume, but there is target incompatibility (soil-target product mixed with leaf-target product), **2-500** Can be tank-mixed at 2-500l/ha water volume, but products should be applied at different soil temperatures/climate/plant life cycle, etc, **⊗** Do not tank-mix, **↑** Add the product on the upper row first, **←** Add the product on the side column first.



6. Selective Herbicides

Featured Products:

- Relay Turf Elite
- Praxys
- Thrust
- Compitox Plus
- Depitox

“Weeds are unwanted and invasive. By effectively controlling these plants, there is less competition for water, nutrients and light for beneficial and desirable vegetation...”

Selective Herbicide Usage Guide

1. Timing

Best results will always be achieved when weeds are actively growing, with good levels of soil moisture and the forecast suggesting good growth for the next few days ahead. This is so the weed takes in the chemical and moves it all round the leaves and roots for a complete kill. The best kill rate will be achieved when plants are not well-established – ideally from the stage between the first 2 true leaves until the 6-leaf stage. Once weeds get beyond this maturity they become progressively harder to eradicate and multiple applications are required.

2. Water Quality

Water usually makes up over 90% of the spray that is applied and has a huge effect on herbicide efficacy. Amine herbicides (such as dicamba, 2,4-D, MCPA & mecoprop-p) are particularly affected. Amines can react with Calcium and Magnesium in high pH hard water and fertilisers. High pH and hard water act together to reduce herbicide effectiveness. High pH causes more of the herbicide to dissociate while high concentrations of cations bind with the dissociated herbicide to reduce its effectiveness.



You can effectively lose a huge amount of active ingredient if mixing with high pH, high bicarbonate water. pH and bicarbonates can be reduced using Growth Products pH Reducer – slowly add pH Reducer to the tank (60ml per 400l to start) and test until a pH of 6 is reached. A floating pH tester can be supplied from the Turf-Tec tools range and can potentially save thousands by preventing binding up of active ingredients in the tank and may well be saving second and third applications.

3. Adjuvants

Using a good quality adjuvant with selective herbicides has been shown in research to increase chemical absorption by 15-20%. Driftmaster not only helps the chemical penetrate the leaf cuticle to enhance efficacy but helps prevent spray drift too. Driftmaster is cost-effective and increases uptake of active ingredients, reduces drift, prevents foaming and maximises your spray to prevent repeat applications.

4. Correct choice of product

Firstly, make sure the product is approved to kill the weeds specified. The selective herbicide product selector on page 64 of the brochure

gives a list of the approved chemicals. When there is a mix of weeds on a site a tank mix of products is often the best way to go to ensure the best kill.

A few suggested mixes are below:

“Broad Spectrum”

4l/ha Relay Turf Elite
1.2l/ha Compitox
1.5l/ha Depitox
4 litres Driftmaster
Effective against 50 common turfgrass weeds.

“Daisies and Clover”

2.4l/ha Compitox
3.3l/ha Depitox
4 litres Driftmaster
A cheap and effective mix against two of the most common turf weeds. Also effective against over 30 other turfgrass weeds.

“Tough to Kill”

2l/ha Praxys
2.8l/ha Depitox
4 litres Driftmaster
Effective against Yellow Suckling Clover, Pearlwort, Yarrow and over 20 other turf weeds.

Relay Turf Elite



MAPP No: 17192
Contains 19.5g/l dicamba, 245g/l MCPA and 43.3g/l mecoprop-P



Relay Turf Elite is a market leading, broad spectrum, selective herbicide for turf and professional lawn care.

Utilising a powerful combination of three active ingredients, Relay Turf offers broad spectrum control of the majority of spring weeds. The actives in RTE are from the phenoxy family. Phenoxy herbicides are selective herbicides that induce similar physiological responses to endogenous plant hormones, such as auxins, gibberellins, cytokinins, abscisic acid, and ethylene.

The herbicide mode of action mimics these natural plant hormones and interferes with cell division with leads to abnormal growth patterns in the weed. The chemical builds up in the growing points of the plant and leads to the targeted plant to begin growing at a rapid rate and therefore dies. RTE is tank mixable with both Compitox and Depitox to broaden the spectrum of weed control.

To ensure efficacy is maximised, always pH test your water prior to application and consider using a buffer and bicarbonate reducer, if required.

- Powerful, 3 active co-formulation for broad spectrum selective weed control
- Mecoprop-P content for clover management
- Fully compatible with liquid feeds and solubles to create a 'Weed and Feed' mix
- Popular and established turf brand
- Low application rate

Product	Pack Size	Rate	Water Volume
Relay TE	5ltr	5ltrs/ha	200ltrs/ha

Usage Period											
J	F	M	A	M	J	J	A	S	O	N	D
		✓	✓	✓	✓	✓	✓	✓	✓		

Praxys

MAPP No: 13912
Contains 144g/L fluroxypyr, 80g/L clopyralid and 2.5g/L florasulam



Praxys is a selective, systemic herbicide for amenity turf, lawns and amenity grassland. A mixture of three modern active ingredients (clopyralid, fluroxypyr and florasulam), Praxys provides outstanding control on many troublesome broad-leaved weeds including clover, daisy and thistle. It is rapidly absorbed into the plant and travels through the whole plant- right down to the root.

One of the most powerful, cost-effective and environmentally sensitive options on the market today, Praxys has an extremely low dose rate that gives a much reduced environmental loading of active ingredients. This means the lowest packaging waste, lowest storage and lowest carriage costs of any product.

Praxys is excellent on most lawn weeds such as bird's foot trefoil, black medick, bristly oxtongue, common cat's-ear, creeping cinquefoil, sorrel, white clover & thistle. Also, as this product is rainfast in only 1 hour, it is convenient for UK weather.

- Combines three modern active ingredients and two modes of action
- Rapidly enters target weeds, traveling through the whole plant to give complete weed destruction
- Selective, systemic post-emergence herbicide
- Rainfast within 1 hour
- Tank mix with foliar feeds and Growth Products Xtra Iron to improve uptake and enhance colour.

Product	Pack Size	Rate	Water Volume
Praxys	2ltr	1-2ltrs/ha	200ltrs/ha

Usage Period											
J	F	M	A	M	J	J	A	S	O	N	D
		✓	✓	✓	✓	✓	✓	✓	✓		

Thrust

MAPP No: 15408
**Contains 344g/L 24-D +
 120g/L dicamba**



Thrust is a strong selective weed killer for the control of annual and broad-leaved weeds in amenity grassland. Whilst this product is highly effective on weeds such as thistle, dock, plantain, soft rush and buttercups, it is particularly effective on the troublesome weed, ragwort.

Thrust can be applied on paddocks and pasture as it will not harm the grass. It can be applied through a vehicle mounted or hand held sprayer making it a useful and versatile product.

- Excellent for controlling a wide range of annual and perennial broadleaved weeds
- Unique combination of active ingredients 2,4-D, dicamba & demethylamine salt
- Achieves the strong kill over the wide weed range & particularly ragwort
- Can be applied via a knapsack or boom sprayer
- Rainfast in 12 hours

Product	Pack Size	Rate	Water Volume
Thrust	5ltr	3.5ltrs/ha	200ltrs/ha

Usage Period

J	F	M	A	M	J	J	A	S	O	N	D
		✓	✓	✓	✓	✓	✓	✓	✓		

Icade

MAPP No: 16182
**Contains 12g/L
 aminopyralid and 120g/L
 triclopyr**



Icade is a very effective, selective weed killer that controls woody weeds, including Brambles, Japanese Knotweed, Hogweed and Buddleia in amenity & industrial areas.

It's advanced herbicide formulation will control deep-rooted perennial, woody and invasive weeds.

Icade is safe for use on grass in amenity and industrial areas (not for use on lawns) & can be used in public areas for the control of many difficult, problem weeds.

- Effective against Brambles, Japanese Knotweed, Hogweed and Buddleia
- Systemic action, translocated from leaf to root to fully control weeds
- Also controls: Gorse, Rosebay Willowherb, Giant Hogweed, nettles, & thistles
- No hazard classification - favourable COSHH assessment.
- Virtually no odour
- Applied via boom or knapsack sprayer
- Rainfast in 1 hour

Product	Pack Size	Rate	Water Volume
Icade	1ltr	200ml in 10L of water per 500m ²	10ltrs/ha

Usage Period

J	F	M	A	M	J	J	A	S	O	N	D
		✓	✓	✓	✓	✓	✓	✓	✓		



Depitox

MAPP No: 13258

Contains 500g/l 2,4-D as the dimethylamine salt

Depitox™ is a single active, selective herbicide for the control of many tough broad-leaved weeds (including ragwort) in amenity & agricultural grassland.

It is most effective on docks, thistles, nettles, rush and ragwort. It is widely used in a tank mix with Relay Turf Elite or Praxys, to widen the spectrum of control.

- Low application rate
- Controls key turf weeds including plantain and creeping buttercup
- Tank mixable with Relay Turf Elite
- Approved for amenity turf and agricultural grassland.



Product	Pack Size	Rate	Water Volume
Depitox	10ltr	3.3ltrs/ha	200ltrs/ha

Usage Period											
J	F	M	A	M	J	J	A	S	O	N	D
		✓	✓	✓	✓	✓	✓	✓	✓		

Vitax Lawn Clear RTU

MAPP No: 15195

Contains: 6.3g/l clopyralid, 27g/l 2,4-D and 31.5g MCPA

Vitax lawn clear RTU is a powerful weed treatment in an easy to use, pre-mixed solution for application to all areas of fine and coarse turf.



- Controls clover, dandelion, daisy, buttercup and plantain
- Suitable for localised application to golf greens
- Regular use through the growing season reduces the need for blanket application
- RTU - simply pump trigger and adjust nozzle accordingly

Pack Size
12 x 750mls

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
Vitax RTU	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Compitox Plus

MAPP No: 14390

Contains 600g /l mecoprop-P

Compitox is a selective herbicide for the control of a wide range of broad-leaved weeds in amenity grassland and managed amenity turf.



The active ingredient is absorbed by both the leaf and roots and is rapidly translocated throughout the target weed.

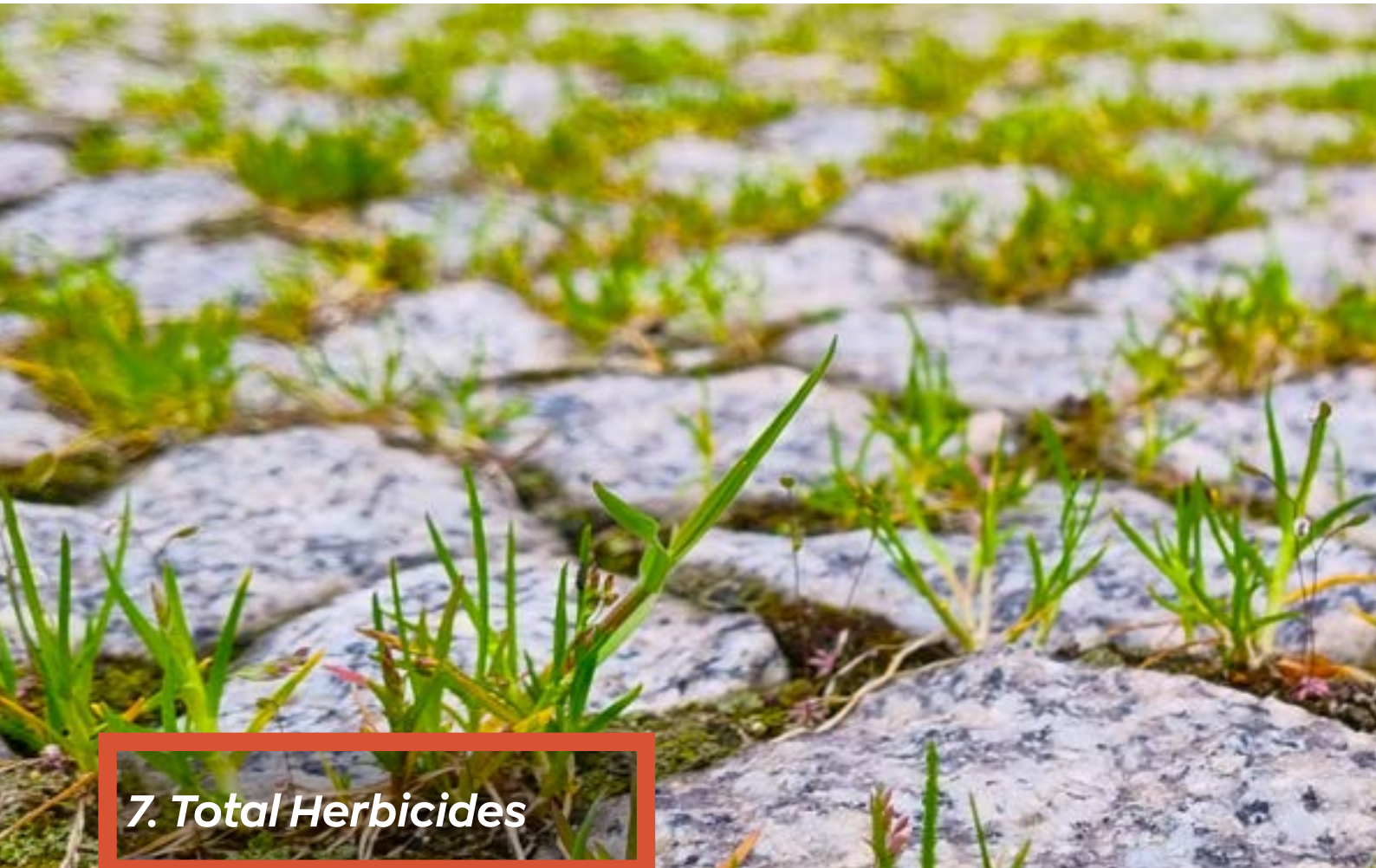
- Can be tank-mixed with Depitox and Relay Turf Elite for broader spectrum control
- Works in cooler conditions
- Excellent clover control

Product	Pack Size	Rate	Water Volume
Compitox +	10ltr	2.4ltrs/ha	200ltrs/ha

Usage Period											
J	F	M	A	M	J	J	A	S	O	N	D
		✓	✓	✓	✓	✓	✓	✓	✓		

Herbicide Guide	Depitox	Praxys	Relay Turf Elite	Compitox Plus	Thrust
Autumn Hawkbit	✓				
Bird's foot-trefoil		✓			
Black Medick		✓			
Bristly Oxtongue		✓			
Cat's ear	✓	✓			
Charlock			✓	✓	
Cleavers			✓	✓	
Common Chickweed	✓		✓	✓	
Common Mouse-ear	✓	✓		✓	
Common Sorrel	✓	✓			
Creeping Buttercup	✓	✓	✓	✓	
Creeping Cinquefoil		✓			
Daisy	✓	✓			
Dandelion	✓	✓			
Docks	✓			✓	✓
Fat Hen			✓	✓	
Field Penny-cress			✓	✓	
Forget-me-not			✓	✓	
Groundsel			✓	✓	
Heath Bedstraw	✓				
Hogweed					
Knotgrass			✓	✓	
Lesser Celandine	✓				
Mayweed				✓	
Mouse-ear Hawkweed	✓				
Nettle				✓	
Pearlwort	✓				
Plantain spp	✓	✓	✓	✓	
Ragwort	✓				✓
Rough Hawkbit	✓				
Selfheal	✓				
Shepherd's-purse			✓	✓	
Silverweed					
Slender Speedwell			✓		
Smooth Hawk's-Beard	✓			✓	
Sow			✓	✓	
Thistle	✓				✓
Thrift	✓				
White Clover			✓		
Yarrow	✓		✓		
Yellow Suckling Clover			✓		

This table is a guide only. Please consult your regional AGS Amenity Specialist for the best advice on rates, timing of application, tank mixing and adjuvant options.



7. Total Herbicides

Featured Products:

- Roundup Pro Active
- Pro Shield
- Chikara
- Gallup 360

“Total herbicides are useful tools in the up-keep of hard surface areas, aquatic weed control and the clearing of sites prior to seeding...”



Roundup Pro Active 360

MAPP No: 10330

Contains 360g/l glyphosate

Roundup Pro contains two Biactivators in addition to the 360g/l glyphosate formulation.

These adjuvants provide increased retention, longer period of uptake and increased penetration, ensuring that more glyphosate reaches the site of action.

- Unique bioactive formulation gets more glyphosate into the plant
- Superior long term control of difficult perennial weeds
- Degraded by micro-organisms/microbes in the soil, excellent rainfastness



Product	Pack Size	Rate	Water Volume
Roundup Pro Active 360	5ltr	5-10ltrs/ha	250ltrs/ha

Pro Shield

MAPP No: 17525

Contains 40g/l diflufenican and 250g/l glyphosate

Pro-Shield is a non-selective herbicide for control of annual and perennial weeds on natural surfaces not intended to bear vegetation, permeable surfaces overlaying soil, and hard surfaces ie. soft surfaces, gravel, soil, hardcore, chippings. Not only will it control weeds and grasses that are present it will also keep weeds away for longer by stopping future re-growth

- A fast acting weed killer, with rapid knockdown and kill, plus an added barrier that prevents weed germination for up to 6 months
- Results seen within 8 - 10 days
- Rainfast within 1 hour



Product	Pack Size	Rate	Water Volume
Pro Shield	5ltr	4.5 L/ha / 225mls per 15L Knapsack (Area 500m ²)	200-400ltrs/ha

Chikara

MAPP No: 13775

Contains 25% w/w flazasulfuron

Chikara is a residual, non-selective herbicide popular with contractors for weed control on industrial areas and landscaped sites that include; natural surfaces not intended to bear vegetation, and permeable surfaces overlying soil and railway ballast.



- Can be tank mixed with glyphosate
- Long term residual material
- Convenient, water dispersible granule

Product	Pack Size	Rate	Water Volume
Chikara	50g	150g/ha	200-600ltrs/ha

Gallup Biograde 360

MAPP No: 17612

Contains 360g/l glyphosate

Gallup 360 is a non-selective herbicide for the control of grasses and broad-leaved weeds in an amenity situation. The product is absorbed by the foliage and translocated throughout the plant and root systems.



- Non-Hazardous (Clean Label) formulation
- Inactivated on contact with soil - no residual build up in profile
- Visible symptoms of uptake within 3-7 days

Product	Pack Size	Rate	Water Volume
Gallup 360	5, 20ltr	1.5-5ltrs/ha	80-250ltrs/ha

New Way Weed Spray

MAPP No: 12328

Contains 240g/l acetic acid

New Way Weed Spray is the first natural based non-selective herbicide for amenity and industrial weed control in the UK. Containing a high concentration of acetic acid, it is extremely fast and is active against most soft plant tissue. It controls grasses, broad leaved weeds and moss.



- Contains acetic acid - one of only two active ingredients approved for hard surfaces
- Controls moss
- Fast acting - weeds die 1 to 2 days after treatment

Product	Pack Size	Rate
New Way Weed Spray	5ltr	1 part to 3 parts water



Knapsack Rate Guide

The table below is for guidance only and shows the amount of chemical required for knapsack sprayers of different capacities.

Knapsack sprayer size	5 ltr	10 Ltr	15 Ltr	20 Ltr
Area sprayed	250 m ²	500m ²	750m ²	1000m ²
Dose rate l/ha				
1.0	25 ml	50 ml	75 ml	100 ml
1.25	31 ml	62 ml	94 ml	125 ml
2.5	62 ml	125 ml	187 ml	250 ml
2.8	70 ml	140 ml	210 ml	280 ml
3.3	82 ml	165 ml	247 ml	330 ml
4.2	105 ml	210 ml	375 ml	500 ml
5.0	125 ml	250 ml	375 ml	500 ml
5.5	138 ml	275 ml	413 ml	550 ml
7.0	175 ml	350 ml	525 ml	700 ml



Roundup Pro Vantage 480

MAPP No: 15534
**Contains 480g/L
 glyphosate**

Roundup® Pro Vantage 480 is the latest amenity glyphosate product from Monsanto.



Following in the footsteps of Roundup Pro Active, the Pro Vantage 480 sets new and improved standards for the market by offering a new high load and low drift formulation which increases the area covered per bottle, ultimately reducing waste and transportation.

Roundup® Pro Vantage 480 also holds the highest level of technical specification which means many of the vital stewardship aspects (such as aquatic approval and a non-hazardous label) are addressed.

- Rainfast in 1 hour for annual weeds and 4 hours for perennial weeds.

- Clean label as defined by COSHH.
- Formulated to reduce drift.
- Can be used on areas of grassland, all edible and non-edible crops, enclosed or open waters, land adjacent to aquatic areas, forests and amenity vegetation.
- Suitable in hard water without a water softener
- Tank mix with Paradise for enhanced residual control.

Pack Size: 5ltrs

Recommended Dilution Rates

Rate Per Hectare	Dilution Per Litre	Weeds Controlled
2.25 Litres	12ml per litre of water	Annual grasses, annual broad-leaved weeds
3 Litres	15ml per litre of water	Arable weeds pre-planting of trees
3.75 Litres	19ml per litre of water	Most perennial weeds
4.5 Litres	23ml per litre of water	Floating aquatic weeds
3.75 Litres	37ml per litre of water	Rhododendron, Ivy, Japanese Knotweed



We offer a wide range of agronomy services to aid the professional turf manager.

We fully embrace technology in all its forms – product innovation, application, communication and data collection – but still believe strongly in treating people as individuals. That’s why we employ one of the UK’s most qualified team of former sports turf managers to service every customer we have. We see it as helping our clients benefit from the latest technology in the most efficient manner possible, whilst never giving the feeling they’re being treated as an account rather than a person.

Whilst we are able to leverage our national scale in terms of investment, purchasing power with major suppliers and centralisation of resources, our business is very much structured around our friendly regional team.

The advantage to our customers is that they are dealing with people who understand their precise needs and localised challenges, and have the full support of AGS’s collective knowledge and extensive supplier base.

Our services include:-

Soil nutrient analysis

Agromony Reports

Leaf tissue analysis

Nutritional and ITM Programmes

Water analysis

Preventative fungicide strategy and plans

Physical soil analysis for aggregate compatibility

Environmental & sustainability planning

Weed, disease & nematode identification

Bespoke product manufacture

Pro Pitch data collection and reporting

Site maintenance budget reviews and recommendations



BASiS



8. Insecticides

Featured Products:

- Acelepryn

“Acelepryn can be recommended in situations where there is an acknowledged instance of economic damage, such as golf courses, horse racing and sports turf...”

Acelepryn

MAPP No: 20149
**Contains: 200 g/l
chlorantraniliprole**



Acelepryn is an insecticide for the control of chafer grubs and leatherjackets. This product has a UK Emergency Authorisation granted for the insecticide to be used on golf greens and tees, horse racing courses and airfields.

Acelepryn requires a BASIS registered Agronomy report before it can be used. The Emergency Authorisation permits Acelepryn use in situations where there is an acknowledged instance of economic damage, or risk of bird strike on airfields, and where the product has been recommended by a BASIS qualified agronomist.



Leatherjackets

- 0.6 litres per hectare, applied in 500-1000 l/ha water
- Maximum number of applications: 1 per year
- Latest time of application: 31st October
- A 5m buffer zone is required to protect aquatic life
- Acelepryn should be well irrigated after application

Timing of Application

Acelepryn is most active on the 1st and 2nd instar stages. However the optimum time of application for best results is before the start of egg-hatch, since the product needs time to move through the thatch layer to the zone where the larvae reside. Prediction for leatherjackets can be based on previous history of damage or by monitoring of peak adult flights.

Chafer Grubs

Species controlled:

- Chafer grubs (larvae)
- Cockchafer (*Melolontha melolontha*)
- Garden chafer (*Phyllopertha horticola*)
- Summer chafer (*Amphimallon solstitialis*)
- Welsh chafer (*Hoplia philanthus*)

Dose and application

- 0.6 litres per hectare, applied in 500-1000 l/ha water
- Maximum number of applications: 1 per year
- Latest time of application: 31st August
- A 5m buffer zone is required to protect aquatic life
- Acelepryn should be well irrigated after application

Product	Pack Size	Rate	Water Volume
Acelepryn	600ml & 3ltr	0.6ltrs/ha	600ltrs/ha

Usage Period											
J	F	M	A	M	J	J	A	S	O	N	D
				✓	✓	✓	✓	✓	✓		



9. Growth Regulators

Featured Products:

- Primo Max II
- Attraxor

“Repeated global PGR trials have shown a typical clipping yield reduction of between 20-40%, depending on grass species and growing conditions...”

Primo Maxx II

MAPP No: 17509
Contains 116.4g/l trinexapac-ethyl



Primo Maxx® is a plant growth regulator for management of amenity turf areas such as parks, golf course fairways, tees and greens, sports fields, cemeteries and turf farms.

Primo Maxx® works by restricting the growth of the grass which in turn reduces the frequency of mowing and the volume of grass clippings. This can be especially useful in difficult areas such as sloping banks.

Primo Maxx® works by causing a temporary halt in the production of gibberellic acid, a plant hormone responsible for promoting top growth in grasses. Primo Maxx® is absorbed by the grass foliage and transported to the growing points at the base of the plants.

One application will shorten the blades of grass by up to 20% for about 4 weeks. Comparing mowing repeatedly and using Primo Maxx to reduce the growth shows considerable cost and time savings.

- Ideal for use on managed amenity turf areas such as sports fields, parks and golf courses.
- Reduced volumes of grass clippings.
- Saves time and money.
- Ideal in difficult mowing areas such as sloping banks.

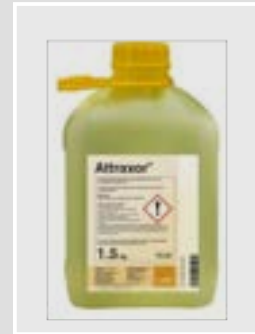
Product	Pack Size	Rate	Water Volume
Primo Max II	5ltr	0.4-3.2ltrs/ha	200-500ltrs

Usage Period

J	F	M	A	M	J	J	A	S	O	N	D
			✓	✓	✓	✓	✓	✓	✓	✓	

Attraxor

MAPP No: 18939
Contains 10% (w/w) prohexadione



Attraxor® is a plant growth regulator containing the new active substance, prohexadione.

Attraxor® can be used to regulate growth of all managed amenity turf (for example: golf, links golf, sports pitches and training grounds, outfields, racecourses, tennis courts, airfields etc) at a rate of 375 – 1,500 g/ha.

Attraxor® has been shown to effectively regulate growth of managed amenity turf. The active substance inhibits the gibberellic acid pathway, which results in a reduction of turf height and turf biomass. Root growth is promoted through the use of Attraxor® whilst turf colour and quality are maintained.

Prohexadione, the active substance in Attraxor® is activated in the tank by the addition of water; therefore growth regulation occurs rapidly following application of the product.

- Formulated for rapid foliar uptake- plant growth regulation acts as quick as 4 hours from application.
- Superior performance against Poa annua pioneering.
- More even growth control on all species of grass plant.
- Extended regulation of growth against fine turf grass species

Product	Pack Size	Rate	Water Volume
Attraxor	1.5kg	0.5-1.5kg/ha	300-600ltrs/ha

Usage Period

J	F	M	A	M	J	J	A	S	O	N	D
			✓	✓	✓	✓	✓	✓	✓	✓	



10. Wetting Agents, Soil Penetrants, Spray Aids & Adjuvants

Featured Products:

- **Growth Products**
HydroSmart NG
- **Aquatrols**
- **LeafGuard™**
- **Advance**

“Turf Managers worldwide rely on surfactants to optimise soil-water-plant interactions, improve irrigation efficiency and reduce disease incidence...”



Growth Products HydroSmart NG



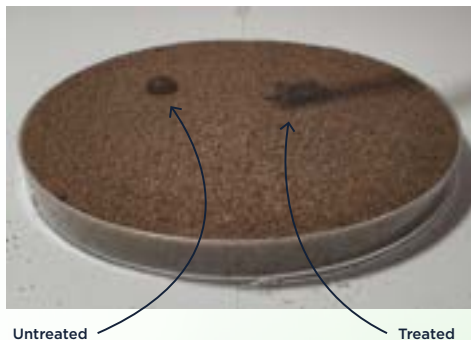
10.

WETTING AGENTS, SOIL PENETRANTS, SPRAY AIDS & ADJUVANTS

- Utilises longer chain triblock copolymers than current market competition allowing improved longevity of product.
- Improved wetting of hydrophobic soil zones due to increased ratio of hydrophobicity in triblock copolymers.
- Effective at enhancing water distribution in the rootzone in both hydrophobic and hydrophilic conditions.
- Non-ionic blend of surfactants with low risk of phytotoxicity.
- Reduced irrigation requirements.
- Conforms to current biodegradability standards.
- Fully compatible with bio-stimulants for mutually beneficial rhizosphere application.



Untreated vs HydroSmart NG @ 10l/ha



Issue	Suggested Tank Mix (per ha)
Monthly programme of optimizing soil moisture and minimizing dry patch.	Apply monthly at 5-15 l/ha depending on dry patch severity at individual sites. Apply first application early in the season before any drought stress occurs for maximum benefit.
Re-wetting hydrophobic soil to eliminate dry patch and increase grass health.	Apply 20l/ha initially to re-wet the soil and then drop back to 10-15l/ha while the possibility of drought stress remains. Always begin a programmed approach early in the season on problem soils.
Maintaining correct soil moisture on hard-to-spray areas (bunker banks, etc.) or where no sprayer is available.	Apply Hydro-Smart Granular at 30g/m ² when there is adequate soil moisture before drought stress appears (March/April). Re-apply 3 months later to maintain correct soil moisture balance. (June/July).

Product	Pack Size	Rate	Longevity
Hydro-Smart Liquid	10ltr	5-20ltr/ha	500-900ltr/ha
Hydro-Smart Granules	20kg	30g/m ²	Water in after application
Hydro-Smart Pellets	6x250g	4-7 greens per pellet avg.	Apply at 6 -8.5 bar

J	F	M	A	M	J	J	A	S	O	N	D
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		



Advance Wet-X

A concentrated wetting agent specially formulated for use on all fine turf for the prevention and alleviation of hydrophobic conditions in all turf grass situations.

Ideal for use on large areas such as football training grounds and fairways, but safe to use on golf and bowling greens.



Advance HydroForce

Utilising market-leading surfactant research, HydroForce is based on non-ionic surfactant reverse-block co-polymer technology. Ideal for programmed use on fine turf and sports pitches.

Can be tank-mixed with many soil-targeted products such as seaweeds, etc. Safe to use with no scorch.



Product	Pack Size	Rate	Water Volume
Wet-X	5l & 200l drums	10l/ha	600 - 1000 ltrs/ha

Product	Pack Size	Rate	Water Volume
Hydro-Force	5l, 20l & 200l drums	10-40l/ha	400 - 800 ltrs/ha

Usage Period											
J	F	M	A	M	J	J	A	S	O	N	D
	✓	✓	✓	✓	✓	✓	✓	✓	✓		

Usage Period											
J	F	M	A	M	J	J	A	S	O	N	D
	✓	✓	✓	✓	✓	✓	✓	✓			

Advance InfloForce

An economic all-round wetting agent for fairways and sports pitches.

InfloForce aids penetration of water through the surface and supports the even distribution of plant-available moisture throughout the rootzone.



Acts as a penetrant in winter while preventing hydrophobicity in summer.

Product	Pack Size	Rate	Water Volume
InfloForce	20l & 200l drums	10-20l/ha	200 - 800 ltrs/ha

Usage Period											
J	F	M	A	M	J	J	A	S	O	N	D
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Envy

Envy is a green pigment specifically designed for turfgrass to give a natural looking green colour whilst both protecting turf from harmful UV rays and maximising PAR (photosynthetically active radiation) during low light periods to improve turf health.



Light has a huge effect upon grass plant growth and health; too little or too much can have negative effects.

Envy helps protect the plant from high stress periods in summer months and helps maximise available PAR in low-light periods of the year when plant growth is slow.

- Improved natural-looking aesthetic appearance.
- Improved pick-up of growth in spring to help reduce early-season differential growth between different species.
- Improves appearance of turf without 'forcing' growth with excess nitrogen.
- Up to 2 months longevity out of growing season.

Product	Pack Size	Rate	Water Volume
Envy	1 ltr	1ltr/ha	300- 600 ltrs/ha

Usage Period

J	F	M	A	M	J	J	A	S	O	N	D
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

HydroSmart Irrigation Tank Tablet

A 3kg large tablet for addition to irrigation tanks. The tablets will dissolve slowly and uniformly, reducing the surface tension of applied water.

HydroSmart's unique dual action will improve applied irrigation water's ability to absorb into the rootzone evenly, giving reduced localised dry patch and promoting healthy growth.



- Increases the wetting power of irrigation water
- Tablets dissolve uniformly and do not break up or disintegrate
- 100% surfactant tablet - no binders

Product	Pack Size	Rate	Water Volume
HydroSmart Irrigation Tank Tablet	3kg tablet	Single tablet per hectare	N/A

Revolution

Unique technology extends turf natural antioxidant activity and significantly increases stress tolerance by balancing air to water ratios in the soil.



- Balances air to water ratio in the soil
- Increases turf resilience and stress tolerance
- Increases chlorophyll production for consistent colour

Product	Pack Size	Rate	Water Volume
Revolution	10, 208 & 1022ltr	19ltrs/ha	800ltrs/ha

Usage Period

J	F	M	A	M	J	J	A	S	O	N	D
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



AGS is proud to supply the full range of innovative Aquatrols products such as industry-leading surfactants, Revolution and Zipline. In addition to the premium water management technology, Aquatrols have developed the cutting edge bionutritional Attain and a complete range of nutritional liquids.

For all turf situations, there are solutions available in the Aquatrols range to provide optimum playing surfaces, for all sports.

Attain

Attain, powered by AquaVita™ Technology is a highly refined proprietary bio-nutritional formulation containing both compost and kelp solution bio-extracts.



Specifically designed for professional turf managers, Attain is the future of organics, derived from natural sources. This unique bio-extraction process promotes optimal plant and soil health for all turf types, including greens, tees, fairways, and sports turf.

Product	Pack Size	Rate	Water Volume
Attain	10 or 110 ltr	10l/ha	300 - 600l/ha

Usage Period

J	F	M	A	M	J	J	A	S	O	N	D
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Aqueduct Flex Granular

Aqueduct Flex provides rapid recovery of stressed turf, with visible results in as little as 3 days when applied at the treatment rate. Aqueduct Flex also provides up to 30-day protection against the development of localized dry spot when applied on a monthly basis.



Aqueduct Flex is safe to use on all turf varieties and areas, including golf course greens, tees, fairways, sports pitches and residential lawns.

It can also be used on ornamental gardens, landscapes, trees, and shrubs.

Product	Pack Size	Application Rate
Aqueduct Flex	20kg	0.5 - 1.25 kg/100 m ²

Usage Period

J	F	M	A	M	J	J	A	S	O	N	D
				✓	✓	✓	✓	✓	✓	✓	

Zipline

Zipline powered by AquaVita™ is a soil surfactant that contains Aquatrols' cutting edge, proprietary technology specifically designed to aid turf care professionals to consistently deliver Fast, Firm, Fine Turf with soil resource enhancement.



Product	Pack Size	Rate	Water Volume
Zipline	10l & 110l drum	6.5 - 25.5l/ha	190 - 800l/ha

Usage Period

J	F	M	A	M	J	J	A	S	O	N	D
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Surfactant	Nutrition
Revolution	CalSea Extra
Zipline	Complete 30.7.22
Firmway	NK Special 31.0.26
Fifty 90	Potash Plus 2.5.0.25
Primer Select	Spring & Summer 36.0.12
Dispatch Sprayable	Premium N 35.0.0
Aqueduct	Super Nitrogen 38.0.0
Aqueduct Flex	Premium K 0.0.25

Advance Pro Wetter Pellets

A high quality soil surfactant pellet for delivering improved performance during syringing and hand watering via our universal application gun.



Superior formulation that provides longevity and reduces localised hydrophobic soil.

Product	Pack Size
Advance Pro Wetter Pellets	6 x pellets

Usage Period											
J	F	M	A	M	J	J	A	S	O	N	D
		✓	✓	✓	✓	✓	✓	✓	✓		

Silwet L77

A full strength, organosilicone non-ionic surfactant containing 80.0% w/w polyalkyleneoxide modified heptamethyl trisiloxane.

Improves pesticide and nutritional retention via faster drying on leaf surface. Increased distribution of soil applied products in higher water volumes.



Rapid dry down and dew reduction of sports turf surfaces.

Product	Pack Size	Rate
Silwet L77	1 ltr	25-50kg/ha

Usage Period											
J	F	M	A	M	J	J	A	S	O	N	D
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Intracrop F16

A new generation surfactant for use with fungicides of all modes of action.



Make your fungicide work harder with F16

Microdochium Patch, Anthracnose and Leaf Spot fungicide programmes are evolving due to the revocation of key active substances. F16 is a unique blend of adjuvants that increases the efficacy of fungicides by improving deposition, coverage and uptake in all turf situations.

Reduce drift

F16 creates a uniform spray pattern and reduces spray drift, ensuring accurate deposition on the target surface - be it leaf or soil placed actives.

Reduce droplet bounce and run off

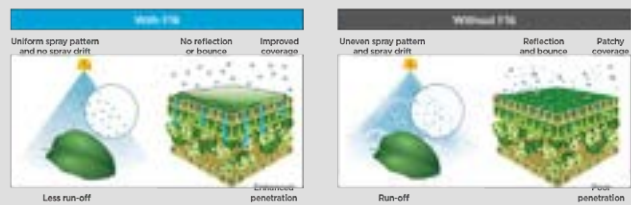
The combination of organo-silicone and twin alkoxyated surfactants lowers the surface tension of spray droplets, reducing droplet bounce (reflection). It also prevents beading or re-aggregation of droplets and their subsequent run-off.

Increase coverage

The unique surfactant blend creates a film over the target surface, ensuring even coverage of difficult to wet targets.

Improve penetration

F16 improves penetration of the outer waxes to increase bio-availability of the fungicide, driving fungicide uptake to increase disease control and improve rain fastness



Product	Pack Size	Rate
F16	1 ltr	800mls/ha

Usage Period											
J	F	M	A	M	J	J	A	S	O	N	D
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Growth Products Hydro-Max

Hydro-Max is a natural wetting agent and soil penetrant derived from the Mohave Desert Yucca plant to optimise water content in sports turf soils.



Hydro-Max can be mixed with N-P-K fertilisers to improve foliar uptake and is environmentally friendly and safe for soil microbes. It is non-phytotoxic and can be applied even in hot, dry weather.

- Natural wetting agent
- Added 2% Humic Acid
- Tank-mixable with herbicides, fungicides and all nutrition
- Alleviates localised dry spot
- Helps leach salts

Product	Pack Size	Rate	Water Volume
Hydro-Max	10ltr	10l/ha	600ltrs/ha

Usage Period											
J	F	M	A	M	J	J	A	S	O	N	D
		✓	✓	✓	✓	✓	✓	✓	✓		

Growth Products HydroFlo

A next-generation penetrant surfactant to efficiently move excess surface moisture down through the soil profile. Increase oxygen in the upper rootzone and firm up surfaces during periods of wet weather using Hydro-Flo's unique action.



Advanced surfactant's and penetrants reduce the surface tension of water to allow fast removal of surface water and even distribution of moisture throughout the profile.

- Promotes even distribution of soil moisture throughout the entire soil profile rather than simply removing surface water like competitor products.
- Extremely safe non-phytotoxic formulation due to its high quality molecular construction which will not damage plant cells.

Product	Pack Size	Rate	Water Volume
HydroFlo	10ltr	5-10ltrs/ha	600ltrs/ha

Usage Period											
J	F	M	A	M	J	J	A	S	O	N	D
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Driftmaster

A combined drift reducer, adjuvant, anti-foam agent and pH buffer that enhances the efficacy of all your spraying operations.



By reducing spray drift you target only the areas you need, minimising waste and environmental pollution.

Driftmaster produces a more uniform droplet pattern for even and accurate application combined with increased leaf absorption to

ensure higher product efficacy and reduced overall costs.

- Reduces drift by 65-70%
- Increases pesticide absorption into the leaf by up to 10%
- Prevents lock up of pesticide active ingredients in hard water areas

Product	Pack Size	Rate
Driftmaster	5ltr	0.5-1ltr per 100ltrs water



LEAF GUARD

GUTTATION SUPPRESSION



Leaf Guard operates by accelerating the removal of moisture from turfgrass leaves, facilitating quicker dry down, ensuring effective guttation and dew dispersal.

This process is crucial in preventing the accumulation of moisture on the leaf surface, a condition conducive to fungal growth. When water droplets merge with guttation, it creates a nourishing environment for fungal pathogens.

Leaf Guard acts as a significant asset in winter disease management, ensuring the turfgrass has reduced leaf wetness which in turns inhibits the growth of fungal spores.



Adhesion & Durability:

Unlike surfactants, Leaf Guard forms a durable, water-resistant coating by adhering directly to the leaf surface, minimising the moisture content on the turfgrass leaves. Once bonded, it maintains its integrity, providing a long-lasting protective layer.

Application Instructions:

For optimal results, Leaf Guard should be applied as a standalone spray on dry turf. Mix 10 litres of Leaf Guard with 300 - 400 litres of water across 1 hectare of greens. The application is recommended to be applied to a dry leaf surface area from mid-August until the end of spring, every 7-21 days, depending on growth rate and mowing practices. Avoid application immediately before heavy rainfall.

Benefits:

- Suppresses the formation of excessive guttation and dew.
- Promotes faster drying of turfgrass leaves post-moisture exposure.
- Eliminates conditions favourable to fungal development by reducing leaf wetness.
- Provides a durable, water-resistant coating on the leaves.
- Aids turfgrass managers in maintaining optimal turf conditions.

Product	Pack Size	Rate	Water Volume
Leaf Guard	10ltr	10l/ha	300-400ltrs/ha

Usage Period											
J	F	M	A	M	J	J	A	S	O	N	D
✓	✓	✓					✓	✓	✓	✓	✓

Penterra

Penterra is an effective soil penetrant and soil surfactant product for addressing hydrophobic profiles and horizons.

Penterra keeps soils from locking up, aggregates clay soils, improves soil structure and allows water and oxygen to better reach plant roots by reducing the surface tension between the water and the soil, while improving the growth and activity of aerobic micro-organisms necessary for a healthy soil environment.

It has a beneficial secondary effect on LDS (Localized Dry Spot), so you are adding long term soil management to the turf and plants to make them healthier and increase its disease tolerance.



Blue Spray Plus

Blue Spray Plus is a superior, efficient and accurate visual application colourant for professionally managed turf.

Blue Spray Plus is 90% dye with no dispersing aids, fillers or unnecessary surfactants.

- Higher pigment load – 10-20% more than competitive colourants, lowering usage rates
- Inert, so will not react with commonly used tank mix products
- Cost effective
- Very low rates when compared with market alternatives.



Product	Pack Size	Rate	Water Volume
Penterra	10ltr	1.6-4ltrs/ha	300-600 ltrs/ha

Product	Pack Size	Rate
Blue Spray Plus	5ltr	100-150mls per 200ltr

Usage Period

J	F	M	A	M	J	J	A	S	O	N	D
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Trail Tracks

Trail Tracks assists the sprayer operator by clearly indicating the line of travel needed to ensure all ground is covered without misses or overlaps. Trail Tracks from De Sangosse is a superior spray bout marker that produces a high quality, thick-bodied long lasting foam.



- Advanced bout marker giving long lasting and clearly visible white foam.
- Safe on all turf
- Can be used with all water types

Product	Pack Size	Rate
Trail Tracks	3ltr	10ml per ltr



Foam Go

Foam Go is a superior concentration of de-foaming agents formulated to give fast, effective and economical control of foaming during spray tank filling.



Foaming can considerably slow down the filling process, lead to loss of product and leave residues on the tank walls.

- Ensures accuracy by allowing accurate measuring and filling
- Use as a preventative or curative
- Supplied in ready to use 1 litre packs

Product	Pack Size	Rate
Foam Go	1 ltr	10-25ml per 100l of spray

Aquarapido



A highly concentrated surfactant designed to aid the penetration of water through turf surfaces with unrivaled dew suppression. Aquarapido draws water from the soil surface and moves through the profile, ensuring you can keep your facility open through wet periods. Due to its penetrative nature, Aquarapido can be applied in light drizzle or when rain is forecast, providing a much bigger spraying window when compared to competing dew control products.



Prevents dew formation for up to 21 days in UK climate and used extensively in disease prevention strategies.

- Rapid surface dry down and standing water reduction
- Unrivaled dew suppression longevity
- Key tool in disease prevention strategies
- Reduced run-off on sloped areas
- Compatible with root targeted bio-stimulants

Product	Pack Size	Rate	Water Volume
AquaRapido	20ltr	5-7ltrs/ha	600 ltrs/ha

Usage Period

J	F	M	A	M	J	J	A	S	O	N	D
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

All Clear Extra

All Clear Extra® is a specially formulated liquid sprayer cleaner which removes pesticide deposits and other debris, including oily substances, from tanks, booms, hoses, filters and nozzles.



- Won't block filters and nozzles
- High pH neutralizes organic acids
- Contains corrosion inhibitors to protect equipment

Product	Pack Size	Rate
All Clear Extra	5ltr	500ml per 100ltr of water





11. Soil Amendments

Featured Products:

- Advance Zeolite
- Advance Greens Gypsum
- Advance Humi-Cal Plus
- Sodium Knockout
- pH Reducer

ICON IDENTIFICATION GUIDE:



LOW SALT INDEX



ROOT ENHANCER



CARBON RICH



DISEASE
SUPPRESSION



RELEASE PERIOD



SOIL HEALTH



“Soil is a mixture of organic matter, minerals, gases and water that together support microbial life. It’s important that the correct balance is maintained..”

Advance Greens Gypsum

Advance Gypsum is a greens grade granular gypsum for use on all fine and coarse turf areas. Advance Greens Gypsum granular is a natural calcium sulphate that helps to flocculate the soil to improve soil structure and drainage.



It is also a rich source of calcium which is important in buffering pH, helps control soil water movement and is crucial in plant cell construction and root development.

- Flocculate soils
- Recovers structure lost in high salt situations
- Increases plants ability to uptake nutrients
- Does not alter soil pH



Analysis	Pack Size	Rate
Greens Gypsum	25kg	25-50g/m ²

Advance Zeolite

Advance zeolite amendment is a naturally occurring non-toxic mineral rock of volcanic origin.



It has the ability to absorb and retain water and via its unique crystalline structure, it releases nutrient into the root zone when the plant demands.

- Boosts cation exchange capacity
- Improves percolation rates
- Relieves compaction
- 100% natural
- Commonly used in pitch construction and maintenance
- Available in either greens or outfield grade



Analysis	Pack Size	Rate
Zeolite	25kg	70-140g/m ²

Advance Humi-Cal Plus

Advance Humi-Cal Plus has been formulated to steadily raise the pH of acidic, sandy rootzones whilst simultaneously increasing the humic content of the soil.



Enriched with humates, seaweed and zeolite to increase microbial activity, improve CEC and provide a long-term food source for beneficial soil biology.

Many sand-based rootzones in sports pitches have suffered from the acidifying nature of free-draining sands plus the high use of sulphur based fertilisers. This can often lead to sports surfaces with a pH below 5.5 which is where nutrient availability and microbial activity starts to fall significantly.

A perfect material to be worked into sports pitches at end of season renovations but can also be used on fine turf such as golf and bowling greens where low pH and low soil humates need to be addressed.

- Easy to apply granular formulation of a four-in-one product to give boost to soil health and save money by reducing fertiliser requirements.
- 70% Calcium carbonate content for deficiency correction.
- A 50g/m² application will apply 25kg of seaweed plus 25kg of humates per hectare.
- Low organic content soils enriched with seaweed and humic acid show increased root growth.
- Humates are known to have benefits in the seedling stage to aid establishment of a new surface. They have a large surface area to increase CEC significantly.



Analysis	Pack Size	Rate
Humi-Cal Plus	25kg	25 - 85g/m ² (Dependant on soil pH and type)

Usage Period

Product	J	F	M	A	M	J	J	A	S	O	N	D
Humi-Cal Plus	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Sodium Knockout 5.0.0

KnockOut is a new and unique combination product that contains readily available calcium and a natural surfactant/wetting agent from yucca. It is an effective tool to reduce sodium levels in soils or bicarbonate accumulation from irrigation water.



KnockOut quickly penetrates even the most difficult soils. It will also increase the permeability of soils while reducing soluble salts that build up from high water salinity.

It can be used on soilless media where excessive salt accumulation (rather than build up) often occurs from continued use of pesticides and high salt fertilisers.

KnockOut's calcium is in a 100% soluble form that is immediately available to react with the sodium, unlike gypsum based products. Calcium cation ranges between 65 - 70% (Cation Exchange Capacity - CEC).

CEC measures the soil's ability to hold nutrients such as potassium (K), magnesium (Mg), and calcium (Ca) as well as other positively charged ions such as sodium (Na) and hydrogen (H). It is a much safer alternative to chlorides and sulphates. KnockOut will improve soil structure, enhance better rooting, water infiltration and improve overall turf quality.

- Reduces soil and water salinity
- Reduces dry spots and improves water filtration
- Improves soil structure
- Enhances root growth & nutrient uptake
- Reduces Bicarbonates



Analysis	Pack Size	Rate	Water Volume
5.0.0	10ltr	10-20ltrs/ha	600ltrs/ha

Usage Period

Product	J	F	M	A	M	J	J	A	S	O	N	D
5.0.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Growth Products pH Reducer

pH Reducer is designed for soil, water and foliar applications, where the pH needs to be lowered into a more acidic range. Citric Acid solution is an organic based material that is a natural and environmentally sound management tool for lowering alkaline soil conditions and acidifying soil and leaves. The addition of a natural surfactant in the formulation enables the product to be absorbed into the leaf, aiding disease prevention.

Disease Management

pH Reducer has been found to be very effective as a Microdochium management aid. The low pH reduces the spread of mycelium on the leaf and dries it out to prevent re-infection. Although not a fungicide, many Turf Managers have found they are able to stretch out the intervals of fungicide applications by applying pH Reducer in between applications.

Soil Conditioner

Many calcareous soils have very high pH ranges (above 7) that make turf grass maintenance difficult. This also tends to tie up many micronutrients, leaving turf grasses chlorotic. USGA spec sands and top dressings usually have a high pH and need to be lowered to an ideal range of 6 to 6.5 pH. Some soils contain high levels of minors that are often in an unavailable, oxidized form not available for plant uptake. By applying citric acid solutions, minors can be chelated and made more available for turf grasses. pH reducer can be

used in place of sulphuric acid and ammonium sulphate.

Water pH Reducer

Many water supplies have very high pH levels, and continuous application of this water will tend to raise the pH of many soils. By adding citric acid solution, hard water levels can be lowered. This will also reduce the possibility of soil pH drifting upwards. The buffer capacity of every water supply differs. Slowly add citric acid to a tank mix and check with a pH meter or litmus paper until the desired pH is reached. If tank mix is not used the same day it is mixed, check pH again and adjust if necessary.

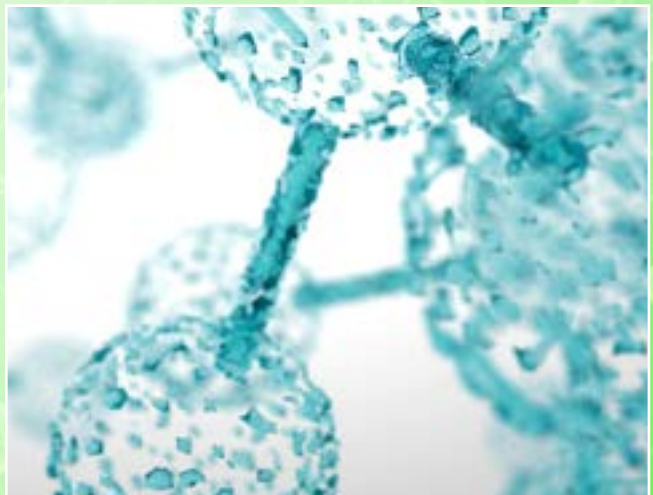
Worm cast suppression

It is well known that reducing the pH of upper soil layers reduces worm activity and associated casting damage. Selected applications of pH Reducer in early autumn in susceptible areas will acidify the soil and deter worms from casting in that area. Used in conjunction with other cultural methods such as top dressing, removing clippings etc, a reduced level of worm casts can realistically be achieved.



Application	Product	Rate	Water Volume
Microdochium Reduction	pH Reducer + X-Xtra Iron	10l/ha + 20l/ha	200-300ltrs/ha
Water pH reducer	pH Reducer	100ml	300ltr
Soil Conditioner	pH Reducer	20l/ha	600-800ltrs/ha
Disease Suppression	pH Reducer	10l/ha	300ltr

Usage Period												
Product	J	F	M	A	M	J	J	A	S	O	N	D
pH Reducer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓





12. Grass Seed

Featured Products:

- Advance
- Barenbrug Sport
- Wildflowers
- Barenbrug Essential Landscaping



Our website provides the latest mixtures, cultivars and technical information. Scan the code for quick access.

“Our knowledge and experience has grown alongside our range. What started as a seed of an idea, has been developed to offer mixtures that fulfil all requirements.....Lets grow grass!”

Joe Hendy

Regional Technical & Seed Product Manager





Advance Range

Formulated in conjunction with our partners at world leading seed producers Barenbrug, our Advance range of seed mixtures are designed to meet the needs & requirements of the modern turf manager.

They contain select cultivars from the BSPB turfgrass seed guide, guaranteed for seedling vigour and cleanliness.

Consisting of traditional mixtures and new formulations, the range fits all seed requirements. Whilst mixtures need a name, many are very much dual purpose and can be used in a multitude of situations. Sowing rates and heights of cut are an approximation, these can be discussed in relation to specific sites with your local AGS Amenity Specialist.



	Premium All Bent	Economy All Bent	Golf & Bowling Green	Fescue 100	Fine Rye 100	Tetra Turf	Multisport Renovation	Tough Tees	Fescue Fairway	Rye Fairway	Shade & Embankment	Cricket / Tennis	General Landscaping
Golf & Bowling Greens	✓	✓	✓	✓	✓								
Tees & Walkways				✓	✓		✓	✓		✓		✓	
Fairways & Roughs								✓	✓	✓	✓		✓
Cricket Wickets & Tennis					✓		✓					✓	
Winter Rescue Mixture						✓							
Sportsfields & Outfields						✓	✓			✓			
Racecourse & Polo					✓	✓	✓						
Garden & Landscape			✓	✓	✓				✓	✓	✓		✓
Low pH			✓										



Greens

Premium All bent



100% Browntop bentgrass mixture, highly rated cultivars for professional golf & bowls green usage. Produces a fine dense turf. Superb summer and winter greenness. Excellent Autumn overseeding mixture.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
70% Browntop Bentgrass	Down to 4mm	5g per m ² (50kgs/Ha)	8 - 10g per m ² (80-100kgs/Ha)
30% Browntop Bentgrass			

Economy All Bent

50% Browntop bentgrass, 50% Highland Browntop bentgrass for the 'Economy' all bent option.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
50% Browntop Bentgrass	Down to 4mm	5g per m ² (50kgs/Ha)	8 - 10g per m ² (80-100kgs/Ha)
50% Browntop Bentgrass			

Fescue 100

50% Slender creeping red fescue, 50% Chewings fescue, for traditional fine turf areas. Excellent appearance, fine leaved, good drought tolerance, dense sward. Tolerates close mowing.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
20% Slender Creeping Red Fescue	Down to 4mm	25g per m ² (250kgs/Ha)	35g per m ² (350kgs/Ha)
30% Slender Creeping Red Fescue			
20% Chewings Fescue			
30% Chewings Fescue			

Golf & Bowling Green

A traditional bowls green mixture. Ideal for areas of low pH and close mown fine turf. Produces a tight and dense surface.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
45% Chewings Fescue	Down to 4mm	15-25g per m ² (150-250kgs/Ha)	25 - 35g per m ² (250-350kgs/Ha)
45% Chewings Fescue			
10% Browntop Bentgrass			

Fine Rye 100



100% fine leaved ryegrass. Rapid To establish, hard wearing, aesthetically pleasing. A consideration for greens experiencing high wear, where traditional greens species are not performing. Late season overseeding could also be a consideration where grass coverage heading into winter is paramount.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
40% Dwarf Perennial Ryegrass	Down to 5mm	25g per m ² (250kgs/Ha)	35g per m ² (350kgs/Ha)
30% Dwarf Perennial Ryegrass			
30% Dwarf Perennial Ryegrass			

Tees & Divot Mixtures (with rye)

Tough Tees



A reliable, hard wearing, quick to establish, self-regenerating mixture. Creates a thick and strong surface. Ideal for tees & divot mixtures.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
40% Perennial Ryegrass	Down to 10mm	25g per m ² (250kgs/Ha)	35g per m ² (350kgs/Ha)
20% Perennial Ryegrass			
40% Strong Creeping Red Fescue			

Fine Rye 100



100% fine leaved ryegrass. Rapid To establish, hard wearing, aesthetically pleasing. Ideal for tees.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
40% Dwarf Perennial Ryegrass	Down to 10mm	25g per m ² (250kgs/Ha)	35g per m ² (350kgs/Ha)
30% Dwarf Perennial Ryegrass			
30% Dwarf Perennial Ryegrass			

Tees & Divot Mixtures (without rye)

Fescue 100



50% Slender creeping red fescue, 50% Chewings fescue, for traditional fine turf areas. Excellent appearance, fine leaved, good drought tolerance, dense sward. Tolerates close mowing.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
20% Slender Creeping Red Fescue	Down to 4mm	25g per m ² (250kgs/Ha)	35g per m ² (350kgs/Ha)
30% Slender Creeping Red Fescue			
20% Chewings Fescue			
30% Chewings Fescue			

Fescue Fairway

Zero Perennial ryegrass, ideal for courses promoting fine turf. Drought tolerant, regenerative, low nutrient demand. Excellent appearance.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
30% Slender Creeping Red Fescue	Down to 8mm	25g per m ² (250kgs/Ha)	35g per m ² (350kgs/Ha)
40% Strong Creeping Red Fescue			
30% Chewings Fescue			



Fairway Mixtures

Rye Fairway

A mixture of fescue and Perennial ryegrass for that extra bit of wear tolerance. Excellent appearance combined with durability. Good tolerance of drought conditions, quick to establish.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
30% Slender Creeping Red Fescue	Down to 12mm	25g per m ² (250kgs/Ha)	35g per m ² (350kgs/Ha)
30% Chewings Fescue			
20% Perennial Ryegrass			
20% Perennial Ryegrass			

Fescue Fairway

Zero Perennial ryegrass, ideal for courses promoting fine turf. Drought tolerant, regenerative, low nutrient demand. Excellent appearance.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
30% Slender Creeping Red Fescue	Down to 8mm	25g per m ² (250kgs/Ha)	35g per m ² (350kgs/Ha)
40% Strong Creeping Red Fescue			
30% Chewings Fescue			

Shade & Embankment

Contains shade tolerant species that will create an attractive turf. Suitable for shaded lawns and low light areas. Fescues will bind soil, are less susceptible to drought and require less nutrient.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
40% Perennial Ryegrass	Down to 25-50mm	25g per m ² (250kgs/Ha)	35g - 50g per m ² (350kgs/Ha - 500kgs/Ha)
20% Slender creeping red fescue			
20% Strong creeping red fescue			
20% Hard Fescue			

Walkways, Surrounds & Approaches

Fine Rye 100

100% fine leaved ryegrass. Rapid To establish, hard wearing, aesthetically pleasing. On a golf course ideal for pinch points that take a lot of traffic.



Mixture	Height of Cut	Overseeding Rate	Sowing Rate
40% Dwarf Perennial Ryegrass	Down to 15mm	25g per m ² (250kgs/Ha)	35g per m ² (350kgs/Ha)
30% Dwarf Perennial Ryegrass			
30% Dwarf Perennial Ryegrass			



Winter Sports

Multi-Sport Renovation

100% Perennial ryegrass your classic sports mixture. Rapid to establish, hard wearing, good recovery rates, good shoot density - Can be used in most sports situations, winter sports in particular.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
50% Perennial Ryegrass	Down to 20mm	15-25g per m ² (150-250kgs/Ha)	35g per m ² (350kgs/Ha)
30% Perennial Ryegrass			
20% Perennial Ryegrass			

Tetra Turf

60% Diploid Perennial ryegrass, 40% Tetraploid Perennial ryegrass, benefit from inherent species benefit traits of Tetraploid PRG, under pinned with top rated diploid perennial ryegrasses. Rapid to establish, hard wearing, less susceptible to disease and drought. Varieties selected for great colour, and the 60/40 split giving that extra shoot density and recovery you only get from diploid inclusion. Establishment achievable under low soil temperature conditions - down to 3.5 degrees C.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
40% Tetraploid Perennial Ryegrass	Down to 12mm	25g per m ² (250kgs/Ha)	35-50g per m ² (350-500kgs/Ha)
30% Perennial Ryegrass			
30% Perennial Ryegrass			

STARFIRE

Our variety for multipurpose use with intensive root system. Deep roots lead to high drought resistance and strong recovery.

- ✓Fast establishment, ✓Exceptional recovery ✓Intensive root system ✓Excellent drought resistance
- ✓High disease resistance and vitality ✓Rich green colour the whole year around

Summer Sports

Fine Rye 100

100% fine leaved ryegrass. Rapid To establish, excellent recovery, aesthetically pleasing. Ideal for Cricket wickets, tennis and areas of fine turf that demand tolerance to close mowing.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
40% Dwarf Perennial Ryegrass	Down to 10mm	25g per m ² (250kgs/Ha)	35g per m ² (350kgs/Ha)
30% Dwarf Perennial Ryegrass			
30% Dwarf Perennial Ryegrass			

Cricket / Tennis

50/50 Dwarf Perennial ryegrass. Ideal for overseeding Cricket squares & Tennis. Rapid establishment & Hard wearing.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
50% Perennial Ryegrass	Down to 15mm	25g per m ² (250kgs/Ha)	35g per m ² (350kgs/Ha)
50% Perennial Ryegrass			

Lawns & Landscaping

General Landscaping

A general mixture suitable for most landscaping areas that experience some wear. Playing fields, parks and family lawns. Creates a thick and strong surface. Rapid to establish, wear tolerant with some regenerative capacity.

Mixture	Height of Cut	Overseeding Rate	Sowing Rate
20% Perennial Ryegrass	Down to 15mm	25g per m ² (250kgs/Ha)	35g per m ² (350kgs/Ha)
20% Perennial Ryegrass			
40% Perennial Ryegrass			
20% Strong Creeping Red Fescue			

Fescue 100

50% Slender creeping red fescue, 50% Chewings fescue, for traditional fine turf areas. Excellent appearance, fine leaved, good drought tolerance.



Mixture	Height of Cut	Overseeding Rate	Sowing Rate
20% Slender Creeping Red Fescue	Down to 5mm	25g per m ² (250kgs/Ha)	35g per m ² (350kgs/Ha)
30% Slender Creeping Red Fescue			
20% Chewings Fescue			
30% Chewings Fescue			

Shade & Embankment

Contains shade tolerant species that will create an attractive turf. Suitable for shaded lawns and low light areas. Fescues will bind soil, are less susceptible to drought and require less nutrient.

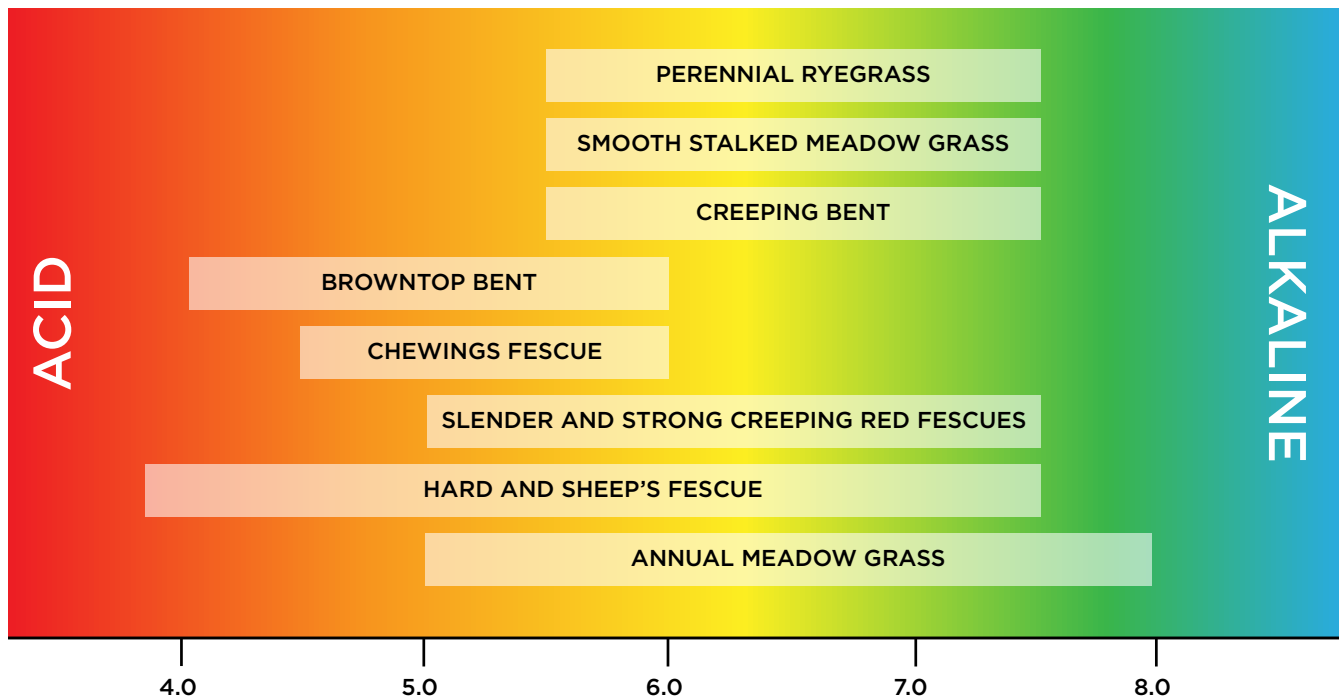
Mixture	Height of Cut	Overseeding Rate	Sowing Rate
40% Perennial Ryegrass	25mm	25g per m ² (250kgs/Ha)	35g - 50g per m ² (350kgs/Ha - 500kgs/Ha)
20% Slender creeping red fescue			
20% Strong creeping red fescue			
20% Hard Fescue			



Soil pH and Turf Growth

When selecting a grass seed species or mixture it's important to be sure of the soil pH you are working with. Sowing a species into an unfavourable soil condition will lead to stunted root growth and a weaker grass plant. This will result in the plant being more susceptible to drought, disease and eventual species displacement.

If you need help establishing your soil pH contact your local AGS Amenity Specialist.



Fertiliser

Seeds contain a small amount of inherent energy reserves for growth; the smaller the seed, the smaller the reserve. Fertilisation ensures nutrient levels are plentiful enough for seedlings to germinate and establish, where they can then support themselves through photosynthesis. A pre seed fertiliser should be a pre requisite to accompany any freshly seeded site to aid initial establishment. Our ethos at AGS is to promote healthy soils using a largely organic & low salt input, creating environments for seedlings to thrive.

Pre Seed fertiliser options:



Sustane 4.6.4

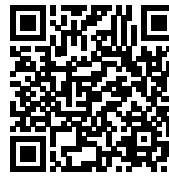
An organic, reliable and universally recognised fertiliser for golf, sports pitches and landscape.



Root Start Plus 13.1.2

A bio stimulant based fertiliser, for speed of establishment, greater rooting and improved soil microbiology.

Whether it's a simple bag of fertiliser, a season long plan, looking to learn more about our famous 'grown in' packages, or for expert technical advice contact your local AGS Amenity Specialist.



For further details on our elite range of mixtures, please visit our seed partner Barenbrug's website. It is constantly updated, latest mixtures, cultivars and extra mixture information. Scan the code for quick access.

Golf

Winter & Summer Sports



	Golf & Bowling Greens	Tees & Walkways	Fairways & Roughs	Cricket Wickets & Tennis	Winter Rescue Mixtures	Sportsfields & Outfields	Racecourse & Polo	Garden & Landscape
All Bent	✓							
Charles	✓							
BarKing	✓							
Classic 80 20	✓							
Fescue	✓							✓
Ultrafine	✓	✓		✓				✓
Ultrafine 60	✓	✓						✓
Ultrafine 30	✓	✓						✓
Fairway			✓					
Rye Fairway			✓					
SGT Fine Fescue			✓					
SGT Fine Fescue			✓					
Shoreline	✓	✓	✓					
RPR Golf		✓	✓					
Extreme		✓	✓	✓				
Elite Sport						✓	✓	
Smooth Sport						✓	✓	
Multi-Sport						✓	✓	
RPR Sport						✓	✓	
SOS					✓	✓	✓	



	Cricket Wickets & Tennis	Winter Rescue Mixture	Sportsfields & Outfields	Racecourse & Polo
Ultrafine 100	✓			
Extreme	✓			
Elite Sport			✓	✓
Smooth Sport			✓	✓
Multi-Sport			✓	✓
RPR Sport			✓	✓
SOS		✓	✓	✓



For further details on our essential landscaping range of mixtures, please visit our seed partner Barenbrug's website. It is constantly updated, latest mixtures, cultivars and extra mixture information. Scan the code for quick access.

All Bent	100% browntop bentgrass blend, designed for overseeding and species exchange in golf and bowling greens.
Charles	100% browntop bentgrass, #No 1 rated variety, exceptionally fine leaved.
BarKing	100% browntop bentgrass, great visual merit & winter colour.
Classic 80:20	Traditional mixture of fescue and bentgrass cultivars for golf and bowling greens.
Fescue	Outstanding blend of four red fescue cultivars for the overseeding and construction of free-draining fine turf.
Ultrafine 100	A blend of perennial ryegrasses for use in areas of fine turf that demand tolerance to close-mowing and high wear with exceptional fineness of leaf.
Ultrafine 60	A mixture of ultrafine perennial ryegrass and red fescue, designed for the construction or overseeding of medium-fine and fine turf under high wear pressure.
Ultrafine 30	A mixture of ultrafine perennial ryegrass and red fescue, designed for the construction or overseeding of fine turf under moderate wear pressure.
Fairway	Excellent blend of four fine fescue species designed for overseeding, divoting and constructing free-draining turf areas on the golf course.
Rye Fairway	Reliable and balanced mixture of ryegrass and fescue, designed for the overseeding, divoting or construction of medium-fine turf (e.g., tees and fairways) across a range of soil types.
SGT Fine Fescue	Innovative mixture of three fine fescue species and sub-species, designed for the overseeding, divoting or construction of free-draining medium-fine turf on sites with particular drought stress.
SGT Rye Fairway	Innovative mixture of four grass species and sub species, designed for the overseeding, divoting or construction of a balanced blend of medium-fine turf across a range of soil types.
Shoreline	Designed for germination and survival in salt for courses exposed to saline conditions.
RPR Golf	A blend of perennial ryegrasses for use in areas of intensive golf traffic, delivering turf with exceptional wear tolerance, fast recovery and good aesthetics.
Extreme	Blend of perennial ryegrasses for use in areas of medium-fine turf that demand a combination of tolerance to close-mowing and high wear.
Elite Sport	A blend of four of the top rated, hard-wearing perennial ryegrasses for the renovation and construction of winter sports pitches. Extensive trial work allows for a disease resistant version as an option if required.
Smooth Sport	Blend of perennial ryegrasses and smooth-stalked meadow grass for the construction of winter sports pitches.
Multi-Sport	Blend of four hard-wearing perennial ryegrasses for the renovation and construction of sports pitches.
RPR Sport	A highly researched blend of four hard-wearing perennial ryegrasses for the renovation and construction of elite winter sports pitches.
SOS	Designed to give the fastest possible germination, establishment and growth for emergency repair of winter sports pitches at low temperatures.

The essential landscaping range, has been formulated to offer a variety of mixtures to fit site specific seeding requirements, where 'general landscaping' simply won't do.

E1 - Lawn & Landscape | *Value for money with no compromise on quality.*

Suitable for professional landscaping and domestic lawns, forming a dense and durable turf.

E2 - Tough Turf | *Hardwearing mixture for areas of intense usage.*

Hardwearing mixture for playing fields, campsites, public open spaces and lawns.

E3 - Universal Turf | *All round aesthetics and wear tolerance.*

For areas that demand excellent aesthetics combined with ability to withstand high wear.

E4 - Fine Turf | *Classic 100% fescue mix.*

A 100% red fescue mix for high quality formal lawns and low-maintenance landscapes.

E8 - Shaded Areas | *Keep your grass green, even when it is in the dark.*

Contains a blend of species that will tolerate shaded conditions.

E9 - Mow Saver | *Less time mowing, more time enjoying.*

Unique low-maintenance mixture utilising a perennial ryegrass that has demonstrated up to 40% slower growth than other amenity cultivars.

E10 - Clay & Waterlogged Soils | *Flood prone areas and waterlogged soils.*

Formulated for areas that are prone to periods of short-term flooding or seasonal waterlogging.

E11 - Water Saver/Dry Soils | *Dry soils, prone to drought, can rejoice.*

Designed for areas of extremely dry, thin and sandy soil that are prone to drought. Also ideal areas of normal soil conditions that are subject to restricted water usage.

E12 - Rapid Repair & Winter Establishment | *Fastest germination time, lowest temperature germination.*

Rapid germination for emergency repairs and low temperature germination for winter use. In trials the annual ryegrass has germinated at temperatures as low as 3.5°C.

E13 - Coastal Areas | *Coastal lawns and landscapes - salt and drought tolerance.*

Developed for coastal areas which are frequently composed of free-draining sandy soils, prone to drought and exposed raised levels of salinity.

E14 - Airfield | *Protecting aircraft by creating an unfavourable habitat for birds.*

Designed to reduce the danger of birds striking aeroplanes in and around airports by creating an unfavourable bird habitat.

E15 - Road Verge | *Official Department for Transport mixture.*

Fast to establish and tolerant of the harsh conditions typical of road verges.

E16 - Embankment & Ground cover | *Steep embankment grass cover.*

Designed to give rapid, yet long lasting ground cover on steep embankments and areas of unstable or loose soil.

E16 C - Embankment & Ground Cover plus Clover | *Added clover to steep embankments.*

The mixture includes a combination of deep-rooted, creeping, drought tolerant and hardwearing species to create an incredibly hardy mixture. With white clover to provide a supply of nutrients for the neighbouring grass plants.

E17 - Slow Motion | *Minimal growth for maximum time saving.*

Composed of slow growing, low-input species for low-maintenance lawns and landscapes.

Wildflowers

We have a portfolio of wildflower seed mixtures that are specifically suited to particular growing environments and soil types. We offer a wide range of mixtures in both 100% wildflower and 80:20 grass: wildflower blends. When selecting a mixture simply choose 100% wildflower or 80:20 and we will add accompanying grass species.

Grass Accompaniment - When choosing 80:20 Grass: Wildflowers, the mixture contains a rich blend of grasses, formulated to compliment the wildflower species. The grass blend contains slow growing species which will not compete against the slower growing wildflowers. Some of the grasses included in the mixtures are quite rare, such as Meadow Foxtail and Sweet Vernal. Soil type specific mixtures also contain grass species that are indicative of that particular habitat, such as Wavy Hairgrass in the acid soils mixture and Wood Meadow Grass in the woodland edge mixture.

We have primarily UK native species, however some non-native mixture options are available depending on end user requirements. Ask our in-house experts for further information.



For further details on our essential landscaping range of mixtures, please visit our seed partner Barenbrug's website. It is constantly updated, latest mixtures, cultivars and extra mixture information. Very user friendly for architects looking to specify wildflower mixtures. Scan the code for quick access.

100% Native Wildflower Mixtures

Cornfield Annual	100% UK Native annual wildflower species. Contains Cornflower, Corn Poppy, Corn Marigold, Corn Chamomile, Corncockle.
Acidic Soils	A blend of wildflower species which are frequently found growing on soils with a low PH, such as heathland.
Bees & Butterflies	A broad and reliable mixture that contains annuals, perennials and biennials. Each wildflower species contained in the mixture is featured on the Royal Horticultural Society 'Perfect for Pollinators' list. Annual species will provide instant results by flowering in the first year.
Chalk, Limestone & Calcareous	Suitable for use on soils which are rich in chalk and limestone. These soils are characteristically quite thin, dry and low in nutrients.
Clay, Heavy soils	Designed to be used on soils which are clay based, prone to waterlogging during the winter and sometimes drying out during the summer months.
Coastal	Features species which are often found growing in a coastal environment. These species are typically quite hardy and tolerant of impoverished soils and a degree of salinity.
Dry Sandy Soils	Formulated to be used on soils which are sand based, free draining and very dry during the summer months.
General Purpose Classic Hay Meadow	A mixture of some of the most commonly found wildflower species in the UK. Can be used on a broad range of soil types.
Shaded Hedgerow & Woodland	A mixture which features species that will tolerate a degree of shade and are typically found growing along hedgerows, on the edges of woodland and in woodland clearings.
Loam & Variable soils	A mixture designed to be used on loam soils which are a mixture of soil types and tend to retain a degree of moisture. A reliable mixture that can be used on larger sites where the soil varies across the site.
Short Flowers	Ideal for smaller areas along roadsides where restricting visibility may be an issue. The wildflower species used in this mixture will grow to approximately knee height.
Tall Flowers	Formulated using wildflowers which can grow to approximately thigh height. Can be sown alongside our 'Short Flowers' mixture to create a contrasting feature.
Wetland & Water Edge	Suitable for sowing in areas bordering lakes, ponds and watercourses. Typically, the soil in these areas will be moist year-round.

Mixtures Containing Non-Native Species

Universal	Annual & perennial mixture containing 20 wildflower species.
Red, White & Blue	Non-native, contains 26 wildflower species.
Classic Annuals	Non-native, contains 18 species.
Pastel shades	Contains 8 species.
Groundcover & low growing	Contains 8 species.



13. Top Dressing & Aggregates

Featured Products:

- Bathgates
- Bourne Amenity
- Mansfield
- CML

“Improve firmness, thatch dilution, turf recovery and rootzone with regular top dressing of sand or a sand/soil mix..”





Through our relationships with market leading manufacturers, AGS offer a comprehensive range of Top Dressings and Aggregates, nationwide. These include:

- Fine Turf Top Dressings
- Rootzones and Divot Mix
- Straight Sands
- Bunker Sands
- Construction Aggregates
- Grade 1 & Recycled Top Soil
- Cricket & Tennis loams
- Greenspread Compost
- Pathways and Sports Surface material
- Bark Woodchip and Mulch
- Railway Sleepers
- Drainage Pipe and Connectors
- Land Drainage material
- Roadstone and Reclaimed materials
- Rock and Marine Salt

All materials are available in small and bulk quantities. Please contact your AGS Amenity Specialist for the latest prices.



14. Spreaders & Sprayers

Featured Products:

- Spreaders
- Sprayers

“Matabi and ICL offer the very best in application equipment with a comprehensive range of spare parts...”

Matabi Evolution 20 Super

Versatile manual backpack sprayer with 20 litre capacity. It includes a selection of nozzles that allows different types of application.

Suitable for use in all turf and industrial situations.

Greater strength and performance to agrochemicals thanks to the quality of its materials (FPM seal and joints, stainless steel handle and reinforced hose).

- Nozzles included (4 holes and white mirror) for different applications and crops.
- Maintenance without tools.
- Homogeneous treatment thanks to the pressure regulator.
- Possibility of mixing inside the tank thanks to the translucent liquid level indicator.
- Ambidextrous and lightweight keeping the ergonomics.
- Suitable for application of products of natural origin (pelargonic, acetic, etc...).





SR2000

SR2000 rotary spreader has all the features of the AccuPro plus:

- New and improved larger diameter, more durable stainless steel frame
- Positive on-off side deflector provides effective product delivery control
- Standard port shut-off control for greater application efficiency



SS-2 Drop Spreader

- Stainless steel frame. Hopper and fastners provides outstanding durability and corrosion resistance
- Larger 139 Turf Saver 2 pneumatic wheels for easier operator use
- Extended ergonomic handle is more durable
- Lift handles in the front and back for easier loading and unloading
- Not suitable for coated controlled release products



Accupro 2000

The AccuPro 2000 is a professional rotary spreader for multi-use.

- Larger 139 Turf Saver 2 pneumatic wheels for an easier push
- Larger diameter frame is more durable
- Patented Helical Cone for a uniform, consistent spread pattern
- Extended handle with tuff-foam grips for added comfort





15. Sport & Agronomy Equipment

Featured Products:

- Pro Pitch
- TJ Golf & Leisure
- Workwear
- Air Seal Products

*“If you can measure it,
you can manage it...”*



Matt Le Brun

*Business
Development
Manager UK / EU*





ProPitch is the market leading, independent, smart pitch management solution for the performance and quality assessment for natural turf sports surfaces.

The innovative system provides a series of pitch tests that put playing quality at its core. The tests are scored and weighted, to provide a rating system, making it simple to monitor surface improvement.

Quality assurance is an essential part of the natural turf development and management process, guaranteeing its performance.

PROPITCH SERVICES

STRATEGY

- Pitch Inspection
- Feasibility Studies
- Budget
- Procurement and Management
- Usage and event modelling
- Risk Assessment
- Project Management
- Tournament delivery
- Sustainability assessment

QUALITY ASSURANCE

- Quality Assurance Standards
- Quality Assurance Testing
- Reports with ProPitch's unique star rating
- ProPitch Self-Assessments, PP15, PP18
- Testing App & Portal

MAINTENANCE

- Independent Maintenance Programmes
- Troubleshooting of problem surfaces

DESIGN & CONSTRUCTION

- Site appraisal and feasibility study
- Design and tendering specifications for construction & drainage
- Site works management

EDUCATION & TRAINING

- Coaching and mentoring



AGS PROPITCH ASSESSMENTS

The AGS ProPitch assessment allows turf managers to monitor pitch / greens readings and adapt maintenance techniques to help produce the perfect sports surface.

- Traction
- Surface Levels
- Hardness
- Infiltration
- Moisture Reading
- Total Ground Cover %
- Weed %
- Sward Height
- Mass Root Depth
- Thatch Depth
- Surface Organic Debris
- Appearance
- Sward Colour
- Disease %
- Insect / Pest %
- Green speed
- Trueness



PROPITCH ASSESSMENTS

This is our standard assessment. It can also be undertaken internally with the use of our ProPitch testing kits and ProPitch Application and data portal.

- Ball Rebound
- Ball Roll
- Traction
- Surface Levels
- Hardness
- Infiltration
- Moisture Reading
- Total Ground Cover %
- Weed %
- Sward Height
- Mass Root Depth
- Thatch Depth
- Surface Organic Debris
- Appearance
- Sward Colour
- Disease %
- Insect / Pest %





PROPITCH APP & PORTAL

ONLINE PORTAL & MOBILE APPLICATION

The ProPitch online portal and mobile application are designed to be used in conjunction with our range of test kits.

Allowing groundstaff to record, collect, report and compare data in an easy to understand and use format. The system produces instant on site reports from the data inputted to the app. the data can then be displayed and shared directly from the app or viewed on the online portal. Access to your data is controlled by you and can be shared internally in your organisation or externally with contractors, tournament organisers or stakeholders as you see fit.

YOU MEASURE IT, YOU MANAGE IT AND YOU CONTROL IT.

The software comes in two packages ProPitch Insight and ProPitch Consult.

Features include:

- Instant reporting
- Data trending
- Data recording
- Access to various assessment types
- Independent assessment requests
- Venue management





PROPITCH CONSULTANCY

CONSULTANCY SERVICES

In addition to the ProPitch system, at our core ProPitch offer independent Consultancy services. Our team specialises in the design, procurement, tendering and project management of facilities and pitches.

An independent consultant, our services in this area include:

- Site appraisal and feasibility report
- Topographical studies
- Design drawings
- Tendering specifications for construction & drainage
- Tender return evaluation report
- Planning applications
- Expert Agronomy advice
 - Bridging calculations
- Site works monitoring
- Overall project management on behalf of the client
- Key stage inspections during build
- Final pitch assessment and quality assurance

All these services are available for both new sites and renovations.



Sport & Agronomy Equipment

AGS are able to supply all your equipment needs for a wide range of sports from golf furniture such as flags, cups, pins, signage and greenkeeping tools like holecutters, rakes, Accu-Gages and dew switches.

We are also UK exclusive distributors for Turf-Tec's range of high quality agronomic tools to help you measure and improve turf performance such as:

- Digital soil thermometer
- Infiltrometer
- FieldScout TDR 350 Moisture Meter's
- Turf Shear Strength Tester
- Wireless Rain Gauge
- Soil pH Meter
- Macroscopes and IPM Scopes
- Automatic Sprayer Nozzle Calibrator
- Light Meter's
- Verde Sports
- Tildenet Sheets
- Line Marking Aerosols

Collection of data is becoming widespread amongst turf managers at all levels and is highly beneficial in making judgements on maintenance operations and inputs. Data is also invaluable when making a case with management over investments in surface improvements.

Data to back up an argument that a surface needs drainage work or increased aeration or top dressing is not merely subjective and can make all the difference in a project or task going ahead, leading to long term improvements.

The TDR 350 Soil Moisture Meter, for example, takes the guesswork out of irrigation. By knowing exactly what levels of moisture you have and how much these levels change with differing irrigation inputs, you can

create exactly the soil environment you require. Those who wish to push out *Poa annua* and promote Bents and Fescues in fine turf can fine tune soil moisture levels to promote their preferred species. Recording just how high moisture levels are in winter and how long it takes to drop to an 'acceptable' level is also very useful for those looking for investment in drainage. Used alongside tools such as the infiltrometer and shear strength tester, a set of data regarding entire surface performance can soon be collected and parameters set for optimum levels.

Other useful tools in our range include, soil pH testers, floating water pH testers, light meters, sprayer calibrators, evapotranspiration gauges and soil sieves. Contact us for details on the full range of tools available.

TJ Golf & Leisure

A full range of specialist equipment for the golf course, sportsground, school, college or any amenity area. Golf course products including flags, pins, cups, tee markers, hazard marker posts, tee mats and hole moving tools including a range of footgolf equipment.

Golf course signage for general course use or bespoke signs including club logos are available. Groundsman and greenkeeping tools such as rakes, shovels, dew and drag brushes, soil samplers, height of cut Accu-Gages

and seed slotting equipment are all available using heavy duty stainless construction for long-lasting value. Also available are general amenity supplies such as high quality teak/iroko benches, litter bins, posts and rope or chains for traffic control and grit/salt bins, etc.



Ear
Defenders

3M Respirator

Colvett
PoloChemical
SuitHelly
Hansen
JacketHelly
Hansen
Trousers

Air-Seal Products

A liquid tyre sealant injected into tyres to seal punctures instantly with no loss of downtime and productivity. Keep mowers and maintenance equipment running all year long with one simple application of Air-Seal. The Heavy Duty grade is suitable for amenity use and will seal punctures up to 15mm in diameter with no loss of pressure.



Workwear & Spray Wear

AGS offer a range of workwear from well-known brands such as Helly Hansen, Dickies, Callaway, Henbury, Regatta, Craghoppers, etc.

Choose from a wide range of styles and colours from our range of hard-wearing practical clothing. Personalised embroidered logos and wording can be added as required.

- Nitrile Spraying Gloves
- Disposable Spray Suits
- Face Shields
- Respirators
- Ear Defenders
- Waterproof Clothing
- Safety Boots



Line Marking Aerosols

Xylene-free aerosol paints for marking G.U.R, hazards and traffic control on the golf course or any turf area. 12 x 750ml can packs in a range of colours.



Verde Sports & Tildenet Sheets and Mats

- Economy and heavy duty germination sheets
- Frost protection sheets for sports pitches
- Sports netting and barriers
- Reinforced 'grow-through' matting for wear areas and paths
- Artificial cricket wickets, netting and covers
- Golf tee mats - temporary and built-in



Groundsmans Turf Hub - Smart Guide

Please speak to your qualified AGS Amenity Specialist representative to expand on subjects and services



Matt Le Brun
Business Development
Manager UK/EU

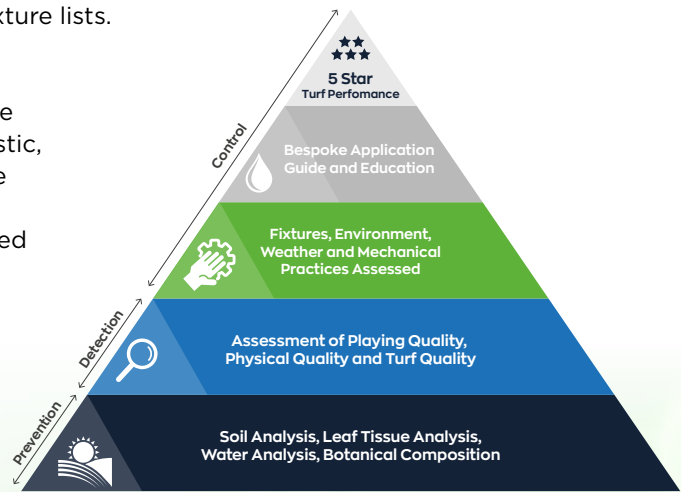
TurfHub – The AGS Customer Journey and added value support

In the fast-paced world of sports turf management, the role of grounds manager has evolved exponentially, transcending traditional boundaries to embrace a multifaceted spectrum of responsibilities. Today’s managers are not only custodians of the pitches but are also adept in handling multi-million-pound projects, delving into the depths of agronomy, soil science, and sustainability, while simultaneously nurturing the growth of grassroots pitches. The industry’s growth, however, is matched by its complexity, with new environmental challenges, emerging diseases, and soaring expectations set against a backdrop of intensifying fixture lists.

AGS has strived to continuously develop with the sector, with our specialist sports agronomy team embodying the essence of the industry’s evolution. Our approach is holistic, comprehensive, and meticulously tailored to encapsulate clear data aspects crucial to the mastery of sports turf management. We are committed to providing unparalleled support and guidance, delivering world-leading product solutions that span the entire field of turf management needs.

Our expertise is underpinned by cutting-edge research, seed specialization, product innovation, and rigorous testing platforms. At AGS, decisions are informed by analytical data, ensuring outcomes that not only meet but exceed the highest standards of sports turf quality. Our experience is broad and deep, encompassing all facets of pitch construction, lighting technology, budget management, educational outreach, and the acquisition of objective data to steer the industry towards a brighter, more informed, sustainable future.

AGS presents an unrivalled support package, meticulously designed to enable facilities to realise their long-term aspirations and make data-driven decisions. This ensures not only the achievement of world-class sports turf results but also lays down a roadmap for a sustainable industry future that does not compromise on turf quality. For an in-depth exploration of the services, products, and added value support the AGS Agronomy team can offer, we invite you to reach out to our specialists. Embark on your journey towards a sustainable, data-driven future in sports turf management with AGS – where excellence is not just promised but delivered.



Matt Le Brun
Business Development
Manager UK/EU



Peter Holmstrom
Amenity Specialist



Joshua Thomason
Technical Manager



Joe Hendy
Amenity Specialist

Renovation - Elevating Sports Turf Management: Your Guide to Optimal Renovation

Agronomic Risks	Opportunity
Water, Air, Light and Temperature	Selection on nutritional forms and moisture balance
Turf Disease	Build resistance to pathogens
Nematodes and Pests	Build soil biology resistance to insects / pests
Restrictive Time Frames	Produce correct growth habits
Pitch Performance, playing quality and turf health	Seed cultivars, germination process, root development, plant health and coverage

Many of our customers we work with today is down to the quality and assurance of the grow in packages and support that we have provided for many years.

The AGS customer journey enables facilities to gather independent and objective data prior to renovation to support works specifications and time frames. Then we assure to follow up periodically through the grow in process to ensure all levels are met from a Physical quality, Playing quality and Turf Quality.

The renovation period stands as a pivotal phase for sports facilities, shaping the entire season's performance. At AGS, we've honed a comprehensive understanding of all facets of renovation, whether it's for summer or winter grow-ins, new pitch constructions, or recovery from high-impact events like concerts, boxing events or sports matches. Our historical data and performance insights are a testament to our expertise, widely recognised across the industry.

Tailored Strategies for Each Facility:

We collaborate closely with each facility to devise a customised plan, taking into account factors like climate, pitch construction, and available resources. Our objective is to minimise risk while ensuring your sports turf is in prime condition within set timelines. This process also includes integrating future-proofing strategies against diseases, pests, and stress factors.

Advanced Solutions and Expertise:

AGS is at the forefront of developing innovative solutions in sports turf management. Our arsenal includes cutting-edge diagnostic data, select grass cultivars, organic treatments, and precisely formulated nutritional inputs, all backed by extensive research. This expertise is evident in our work across various tiers of the sports industry, from prestigious national stadiums to grassroots facilities.

Partnering for Success:

Our specialists, equipped with vast knowledge, tools, and practical experience, are ready to assist clients across the sports industry. We focus on delivering sustainable, research-backed solutions that are tailored to the unique needs of each facility. Our commitment is to provide world-class grow-in processes, understanding the dynamic nature of sports turf management.

Act Now: Reach out to us to discuss how we can transform your sports turf management, ensuring your facility remains a leader in the field.

SOIL AMENDMENTS

GRASS SEED CULTIVARS

GROW IN PRODUCTS AND SOLUTIONS



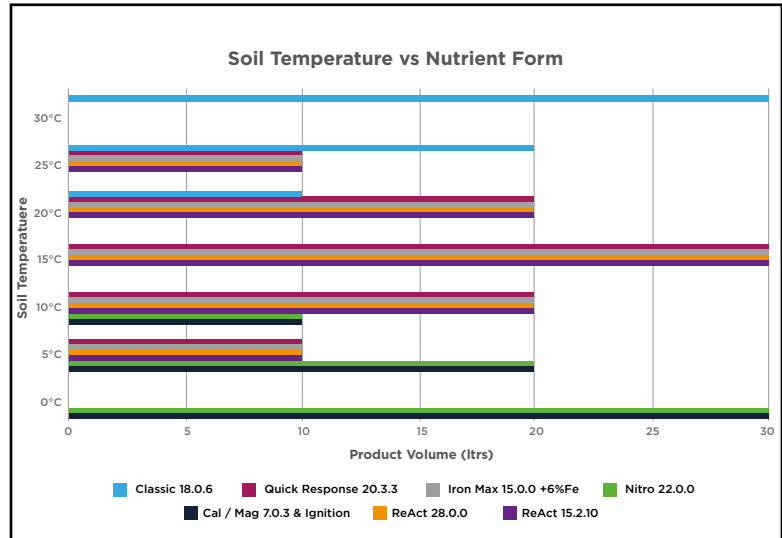
Liquid Primary Nutrition for Sports Turf: Your Guide to Optimum Turf Health

Revolutionising Turf Management with AGS Liquid Primary Nutrition

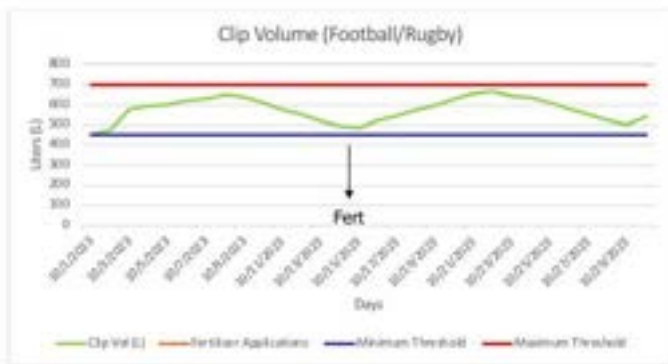
At AGS, we understand the pivotal role liquid primary nutrition plays in achieving optimum sports turf quality. Our extensive experience in turf management guides us in providing precise liquid fertiliser applications, ensuring adherence to sustainable practices. We're not just a provider; we are your partners in turf excellence.

Why Choose AGS?

Sustainable Solutions: AGS products are at the forefront of sustainable turf management. We believe in objective data management, ensuring our solutions are both environmentally friendly and effective.



Research-backed products: Our portfolio is backed by substantial research, ensuring that every product we offer is among the leading solutions in the market.



Vast Experience: Our deep understanding of sports turf management, combined with our commitment to future developments and changes, positions us as a leader in the field.

Tailored to Your Needs

Varied Product Range: From low salt nitrogen for balanced growth to specific nitrogen forms for tailored results, our products cater to all abiotic and biotic stresses.

Customisable Solutions: We work closely with all levels of facilities to provide bespoke solutions. Our aim is to minimise leaching and maximise impact, thereby reducing risks and enhancing turf health.

Let's Collaborate for Greener Turf

Are you a Stadium Manager, Grounds Manager, or a Professional in Sports Turf Management? AGS is here to assist. Our experts are ready to guide you in choosing the right combination of nutrients for your turf. Contact us now to discuss your needs and take the first step towards greener, healthier turf.

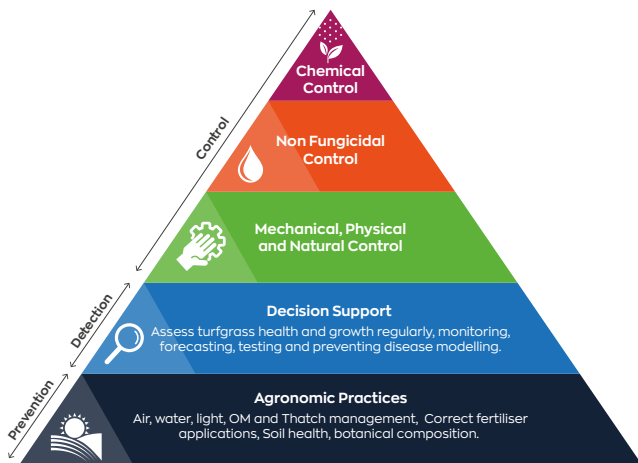
GROWTH PRODUCTS

CLIENTS

AGS SUITE



Pioneering Disease Resistance and Plant Stress Management



Embracing a New Era in Turf Health

AGS is leading the way in non-fungicidal solutions and biostimulants, perfectly aligning with our comprehensive approach to plant physiology and soil biology. Our goal is to unlock the full biological potential of plants and soils, empowering groundsmen to proactively manage the myriad of challenges in today's industry.

Our Strategy: Prevention and Resilience

Stress Management: Understanding that stress is a precursor to disease and pests, AGS offers a range of plant elicitors and biostimulants. These solutions not only manage stress but also mitigate disease outbreaks, ensuring your turf remains healthy and robust.

Sustainable Approach: We focus on creating solutions that work in harmony with nature. Our approach is fully sustainable, aligning with the global shift towards environmentally conscious practices in turf management.

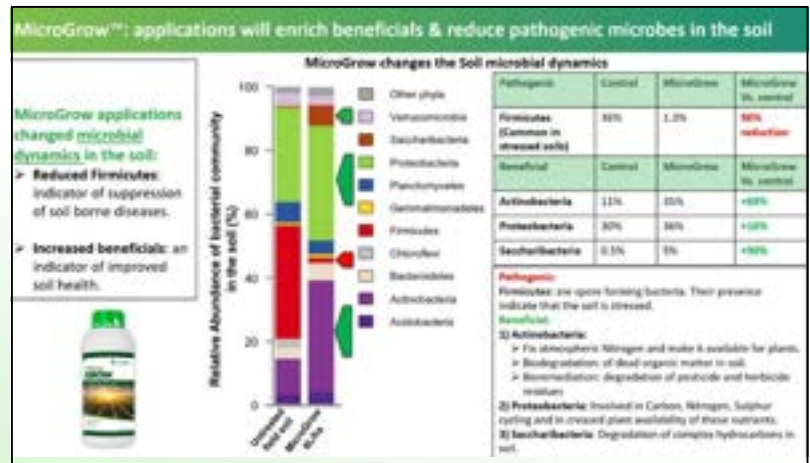
Moving Beyond Traditional Methods

Beyond Fungicides: The traditional reach for fungicides is being reevaluated. While some advocate metal-based solutions, we recognise the potential harm to soil biology. AGS focuses on long-term health, with minimal reliance on such quick fixes.

Balanced Solutions: Our ethos is to combine long-term sustainable approaches with short-term, non-harmful solutions. This balance ensures immediate relief during acute stress periods while maintaining overall soil health and reducing chemical dependency.

Partner with AGS for a Healthier Turf

We invite Stadium Managers, Grounds Managers, and Professional Sports Turf Managers to join us in this journey towards a sustainable, healthier future for turf management. Contact AGS today to discuss how our innovative solutions can elevate your turf management practices.



PLANT ELICITORS

BIO STIMULANTS

TESTIMONIAL



"We have been utilising Bio Atlantis LamVita for around 6 months and have seen a very good turf response in the stadium environment. We have been able to hold off using our artificial grow light rigs into the late Autumn which has been significantly beneficial to the business costs without impacting our ability to produce a good surface."

- Jim Buttar

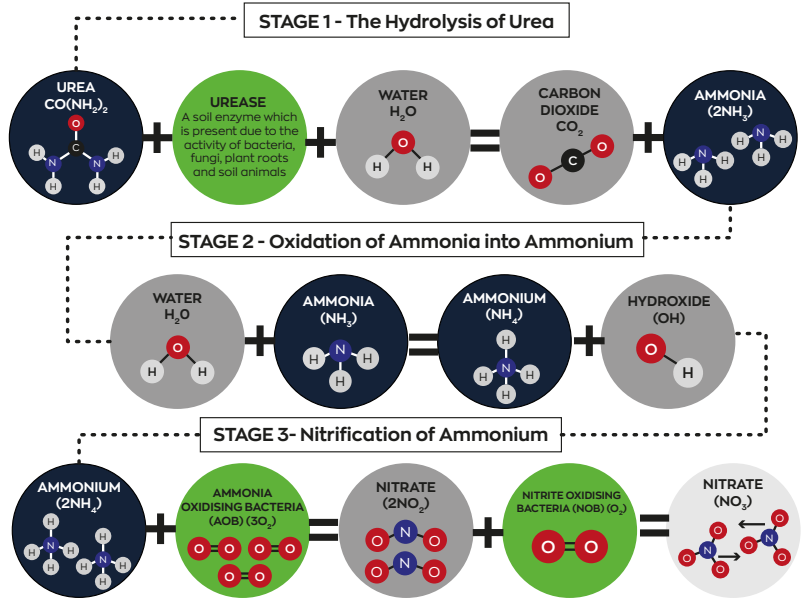
Premier Granular Options for Sports Turf Nutrition

Elevating Sports Turf with AGS Granular Nutrition

AGS recognises the critical role granular applications play in sports turf management. Our granular solutions are designed to cater to the essential aspects of turf health: growth, nutrient balance, soil biology, longevity, and hardiness. This holistic approach ensures your turf remains in prime condition, reflecting our commitment to excellence.

Why Choose AGS Granular Solutions?

Data-Backed Excellence: Our selections are based on extensive research and data. We've learned key indicators for successful application across various



sports turf types and construction levels, offering a range of mineral, controlled, and organic fertilisers.

Customised to Your Needs: Understanding the diversity of turf requirements, we offer a blend of release patterns that can be tailored for your specific needs. Our goal is to ensure the correct application for the desired effect.

Sustainability and Soil Health: With a strong focus on sustainability, our granular options are designed to enhance your soil profile. We support the key performance factors crucial to modern sports turf management.

AGS Granular Portfolio: A Cut Above

Versatile and Proven: Our granular options include various release patterns and the finest organic raw materials. Tried and tested at all levels, AGS works closely with facilities to optimise the balance of granular nutrition.

Your Partner in Turf Excellence

Stadium Managers, Grounds Managers, and Professional Sports Turf Managers are invited to explore the superior granular options offered by AGS. Our expertise and world-class products are at your disposal to achieve the very best, sustainable surfaces. Contact us to discuss how we can elevate your turf to the next level.

SUSTANE PRODUCTS

POLYON PRODUCTS

GROWTH PRODUCTS



Sports Turf Solutions

Please speak to your qualified AGS representative today to discuss bespoke solutions for your facility.

Disease and PPN Prevention



Light Solutions



Rhizosphere



Aesthetic, Performance and Wear Tolerance



Water Management



Fungicidal Treatments



Also available

- Integrated disease management plans
- Data analysis
- Sustainability modelling



Product Analysis %	Application rate g/m ²								
	10	15	20	25	30	35	40	45	70
1	1	1.5	2.	2.5	3	3.5	4	4.5	7
2	2	3	4	5	6	7	8	9	14
3	3	4.5	6	7.5	9	10.5	12	13.5	21
4	4	6	8	10	12	14	16	18	28
5	5	7.5	10	12.5	15	17.5	20	22.5	35
6	6	9	12	15	18	21	24	27	42
7	7	10.5	14	17.5	21	24.5	28	31.5	49
8	8	12	16	20	24	28	32	36	56
9	9	13.5	18	22.5	27	31.5	36	40.5	63
10	10	15	20	25	30	35	40	45	70
11	11	16.5	22	27.5	33	38.5	44	49.5	77
12	12	18	24	30	36	42	48	54	84
13	13	19.5	26	32.5	39	45.5	52	58.5	91
14	14	21	28	35	42	49	56	63	98
15	15	22.5	30	37.5	45	52.5	60	67.5	105
16	16	24	32	40	48	56	64	72	112
17	17	22.5	34	42.5	51	59.5	68	76.5	119
18	18	27	36	45	54	63	72	81	126
19	19	28.5	38	47.5	57	66.5	76	85.5	133
20	20	30	40	50	60	70	80	90	140
21	21	31.5	42	52.5	63	73.5	84	94.5	147
22	22	33	44	55	66	77	88	99	154
23	23	34.5	46	57.5	69	80.5	92	103.5	161
24	24	36	48	60	72	84	96	108	168
25	25	37.5	50	62.5	75	87.5	100	112.5	175
26	26	39	52	65	78	91	104	117	182
27	27	40.5	54	67.5	81	94.5	108	121.5	189
28	28	42	56	70	84	98	112	126	196
29	29	43.5	58	72.5	87	101.5	116	130.5	-
30	30	45	60	75	90	105	120	135	-
31	31	46.5	62	77.5	93	108.5	124	139.5	-
32	32	48	64	80	96	112	128	144	-
33	33	49.5	66	82.5	99	115.5	132	148.5	-
34	34	51	68	85	102	119	136	153	-
35	35	52.5	70	87.5	105	122.5	140	157.5	-
36	36	54	72	90	108	126	144	162	-
37	37	55.5	74	92.5	111	129.5	148	166.5	-
38	38	57	76	95	114	133	152	171	-
39	39	58.5	78	97.5	117	136.5	156	175.5	-
40	40	60	80	100	120	140	160	180	-
41	41	61.5	82	102.5	123	143.5	164	184.5	-
42	42	63	84	105	126	147	168	189	-
43	43	64.5	86	107.5	129	150.5	172	193.5	-
44	44	66	88	110	132	154	176	198	-
45	45	67.5	90	112.5	135	157.5	180	-	-
46	46	69	92	115	138	161	184	-	-

Granular Fertilisers - Formula

To calculate the kg of nutrient applied per hectare use;

Application rate (in g/m²) x % Nutrient Content/10

Example:

An application of Polyon 24-5-8 (6-7 month release) applied at 35g/m²

35 x 24/10 = 84kg of N per hectare

35 x 5/10 = 17.5kg of P₂O₅ per hectare

35 x 8/10 = 28kg of K₂O per hectare

Water Soluble Fertilisers - Formula

Application rate (in kg/ha) x % Nutrient Content/100

Example:

An application of Yara Kristalon Lilac 20-8-8 water soluble fertiliser applied at 50kg/ha

50 x 20/100 = 10kg N per hectare

50 x 8/100 = 4kg P₂O₅

50 x 8/100 = 4kg K₂O per hectare

Liquid Fertilisers - Formula

Application rate (in litres per hectare) x Specific Gravity of the liquid = W and then **W x % nutrient content/100**

Example:

An application of 18-3-6 liquid applied at 20 litres per hectare. (S.G. = 1.26)

20 x 1.26 (Specific Gravity) = 25.2

25.2 x 18/100 = 4.5kg N per hectare

25.2 x 3/100 = 0.75kg P₂O₅ per hectare

25.2 x 6/100 = 1.5kg K₂O per hectare

Sports Pitch Dimensions (Average)

Golf Green 500m²/600m²

Golf Tee 250m²/500m²

Football 6400m²

Rugby 6900m²

Cricket Square 690m²

Bowls 1600m²

Lawn Tennis 262m²

GRANULAR SPREADER SETTINGS

The spreader settings provided are based on an assumed walking speed of roughly 5km/hr. These are general guidelines to aid users. However, it's important to note that achieving precise application rates depends on both the specific spreader model and the proficiency of the operator. For optimal results, it's advisable to calibrate the spreader periodically, ensuring you also account for the effective spreading width.



Product	Accupro 2000				
Sustane (Fine Grade)	Application Rate g/m ²	Single Pass Letter	Double Pass Letter	Cone No.	Spread Width (m)
Sustane 4.6.4	20	N½	M	7	3.6
Sustane 4.4.4	25	O	M	7	3.6
Sustane 5.2.4	30	P½	M½	7	3.6
Sustane 5.2.10	35	R	N	7	3.6
Sustane 6.2.4	40	S	N½	7	3.6
Sustane 10.1.4	45	T½	O	7	3.6
Sustane 10.2.10	50	V	O	7	3.6
	100	N/A	V	7	3.6

Sustane (Medium Grade)	Application Rate g/m ²	Single Pass Letter	Double Pass Letter	Cone No.	Spread Width (m)
Sustane 4.6.4	20	Q	L	5	5.5
Sustane 18.1.8	25	S	M	5	5.5
	30	T	O	5	5.5
	35	U	P	5	5.5
	40	Z	Q	5	5.5
	45	N/A	R	5	5.5
	50	N/A	S	5	5.5
	100	N/A	N/A	5	5.5

Sustane (Mini Grade)	Application Rate g/m ²	Single Pass Letter	Double Pass Letter	Cone No.	Spread Width (m)
Sustane 15.3.9	35	U½	P	7.5	3

Sustane (Soil Amendment)	Application Rate g/m ²	Single Pass Letter	Double Pass Letter	Cone No.	Spread Width (m)
Sustane ReGen 1.1.1	50g	U½	P	6	3



Product	Accupro 2000				
Polyon Controlled Release (1-2mm)	Application Rate g/m ²	Single Pass Letter	Double Pass Letter	Cone No.	Spread Width (m)
Polyon 12-0-25	20	M	L	5	4
Polyon 15-0-30	25	O	L	5	4
Polyon 20-5-8	30	P	M	5	4
Polyon 24-5-8	35	Q	M	5	4
	40	R	M	5	4
	45	S ½	N/A	5	4
	50	T½	O	5	4
	100	N/A	T	5	4



Product	Accupro 2000				
Polyon Controlled Release (2-3mm)	Application Rate g/m ²	Single Pass Letter	Double Pass Letter	Cone No.	Spread Width (m)
Polyon 12-0-25	20	P	L	4	4.7
Polyon 15-0-10	25	Q	M	4	4.7
Polyon 15-0-30	30	R ½	N	4	4.7
Polyon 15-5-15	35	T ½	O	4	4.7
Polyon 18-0-8	40	V	O ½	4	4.7
Polyon 20-5-8	45	X	P	4	4.7
Polyon 24-5-8	50	Q	Q	4	4.7
Polyon 28-0-0	100	N/A	N/A	4	4.7
Polyon 30-0-5					



Product	Accupro 2000				
Growth Products Micro Granular (1-2mm)	Application Rate g/m ²	Single Pass Letter	Double Pass Letter	Cone No.	Spread Width (m)
Growth Products 3-0-22	20	L ½	I	5	4
Growth Products 4-0-4	25	M	J	5	4
Growth Products 4-0-8	30	N ½	K	5	4
Growth Products 6-5-10	35	N	K 1/34	5	4
Growth Products 8-0-4	40	O	L ½	5	4
Growth Products 10-4-4	45	P	M	5	4
	50	Q	M	5	4
	100		Q	5	4

Growth Products Pro	Application Rate g/m ²	Single Pass Letter	Double Pass Letter	Cone No.	Spread Width (m)
Growth Products HydroSmart Granules	10	J	H ½	5	4
	15	K ½	I	5	4
	20	M	J	5	4

Product	Accupro 2000				
Growth Products Controlled Release 2-3mm	Application Rate g/m ²	Single Pass Letter	Double Pass Letter	Cone No.	Spread Width (m)
Growth Products 12-5-22	20	N	L	5	4
Growth Products 12-12-12	25	P	M	5	4
Growth Products 21-0-8	30	P	M ½	5	4
	35	Q	N	5	4
	40	S	N	5	4
	45	T	O	5	4
	50	U	P	5	4
	100		U	5	4

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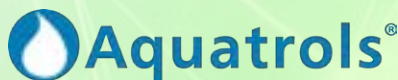
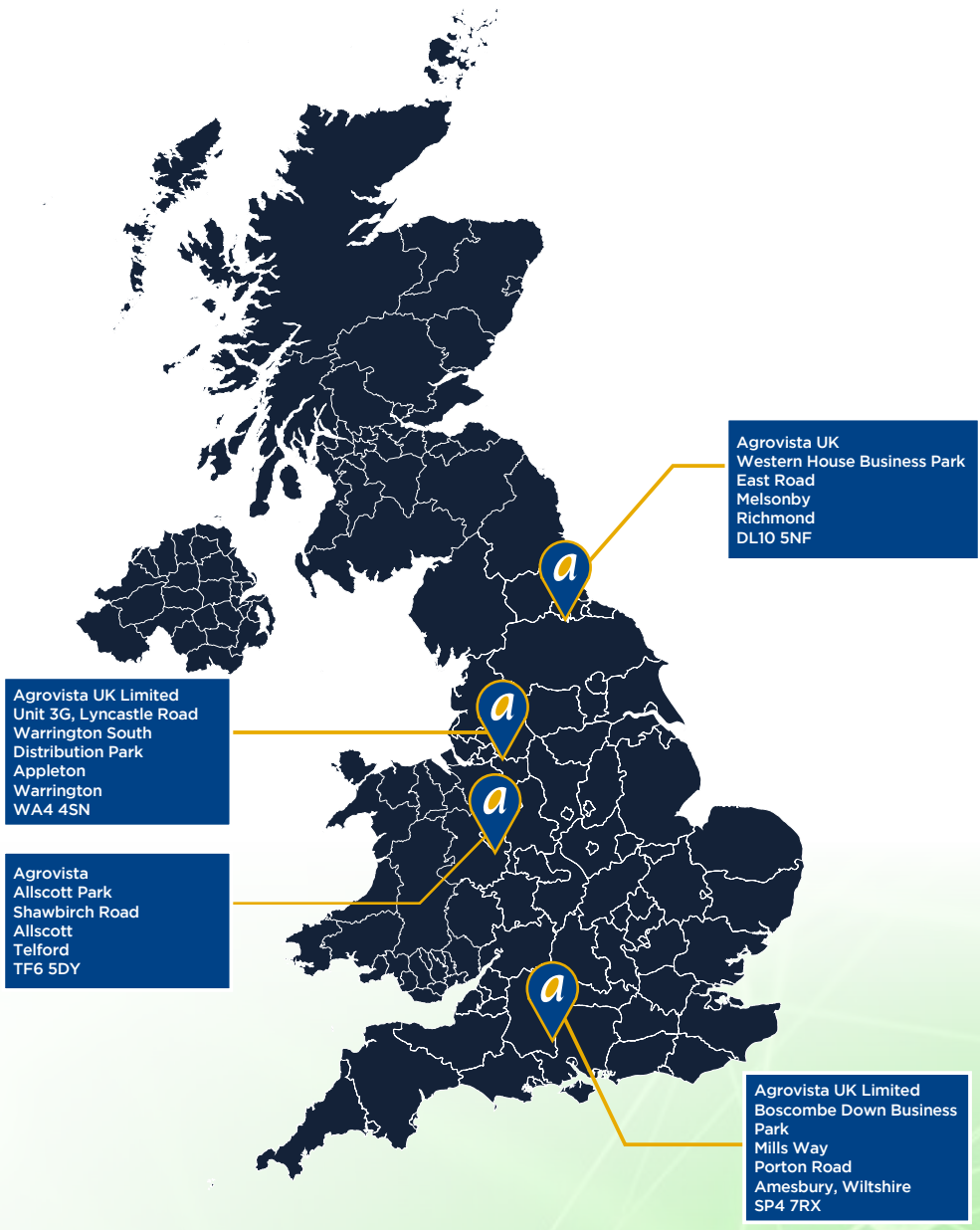


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An award winning, independent business providing agronomy services and an exclusive product range to the sports turf and amenity industry, supported by a market leading in-field technical team.


With loyal customers from grassroots sport and bowling clubs through to Ryder Cup venues and Premier League football clubs, we can offer help and assistance to improve turf surfaces at all levels.


At AGS, we believe in genuine customer service and promise our clients an unrivalled personal experience.

Product supply | Agronomy reports | Nutritional and IPM programmes | Soil, water, leaf tissue and aggregate analysis | Pests, weeds, disease and nematode identification | Sports surface benchmarking, assessment and performance | Bespoke product manufacture and alignment | Environmental planning & project management | Site maintenance budget reviews

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