




# *Nutrition*

The Agrovista Amenity nutrition product offerings, including granular, liquid, soluble, and micronutrients



# Welcome

The aim of this brochure is not just to provide a list of products, but also to offer you with the support and guidance to help you make clear informed choices. Our independent and global reach allow us to source and offer products from many different supply partners, blending the best the market has to offer in a complete range. Over the last few seasons, we have seen global instability leading to wild fluctuations in commodity pricing and the knock-on effect of huge price increases in what was staple fertiliser choices. By sourcing directly, we can provide nutritional solutions that offer the best value without sacrificing agronomic performance.

We offer market leading testing to allow the optimum decision support to your nutritional inputs. Your Agrovista Amenity representative is qualified to BASIS and FACTS as a minimum, and will be able to provide you with soil, water and leaf tissue analysis. In addition, your representative can also offer a fully independent fertiliser programme complete with weekly weather data to support your input choices.

I would also like to take the opportunity to remind you about the Agrovista Amenity Academy ([www.amenityacademy.co.uk](http://www.amenityacademy.co.uk)). On the Academy website you can undertake product courses which have been designed to help you fully understand and get the maximum benefit from the products you purchase. As well as earning CPD points whilst you learn.

I hope you enjoy this brochure and the services and support we offer.

Good luck for the season ahead.



**John Marland**  
Head of Amenity



## KEY - Product application timings

Please note our suggested product application months throughout this brochure

**Green:** Main usage period    **Orange:** Extended usage period    **Grey:** Use not recommended

J	F	M	A	M	J	J	A	S	O	N	D
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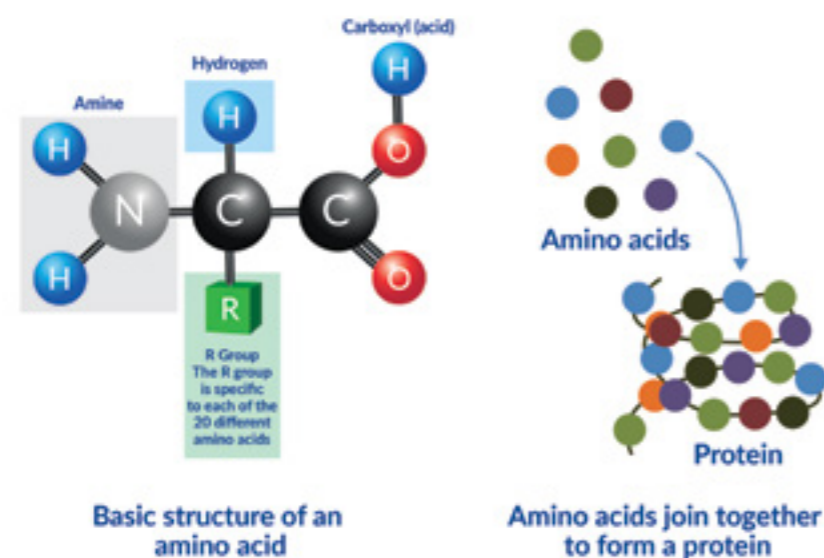
Use plant protection products safely.  
Always read the label and product information before use.

# Nitrogen: the building block for plant health

Nitrogen is a key component of proteins which help plants to grow by providing structural support for cells, helping cells to interact with their environment, and reducing the energy requirements for biochemical reactions. Proteins also transport nitrogen through the plant and are nitrogen donors for other fundamental compounds such as:

- Nucleic acids: The building blocks of DNA and RNA
- Hormones: Chemicals which control activities within the plant
- Chlorophyll: The pigments that enable plants to create food through photosynthesis

Proteins are formed from the bonding of amino acids. Each amino acid has a basic structure with a central carbon atom which is bonded to an amino group ( $\text{NH}_2$ ), a carboxyl (acid) group ( $\text{COOH}$ ), and a hydrogen atom. The final component is an R group which determines the unique properties of each of the 20 different amino acids.



## Illustration of basic structure of amino acid and how they join together to form a protein

The nitrogen that is used as a component of amino acids and proteins is generally taken up from the soil in the form of either nitrate ( $\text{NO}_3^-$ ) or ammonium ( $\text{NH}_4^+$ ). Nitrates are the preferred form and can either be stored in the root for later use or translocated to the shoot where they are assimilated into amino acids. When ammonium is taken up from the soil, assimilation generally occurs in the plant root following uptake.

## N Nitrogen sources

### Urea

Formed by reacting ammonia with carbon dioxide at high pressure. Urea contains 46% nitrogen and is soluble in water, so it can be applied as either a granule or liquid.

### Ammonium nitrate

Ammonium nitrate is produced from ammonia by reaction with nitric acid. Ammonium nitrate contains 34% nitrogen and is also soluble in water.

### Calcium ammonium nitrate

A mixture of ammonium nitrate and limestone (calcium carbonate) and/or dolomite (calcium carbonate and magnesium carbonate). Calcium ammonium nitrate contains 25-28% nitrogen.

### Sulphate of ammonia

Produced by combining ammonia and sulfuric acid, sulphate of ammonia is useful where deficiencies of sulphur occur. It contains 21% nitrogen and 24% sulphur.

### Potassium nitrate

Manufactured by reacting sodium nitrate with potassium chloride. Potassium nitrate can be used in colder temperatures as the nitrogen is available to the plant without the need for nitrification by soil bacteria. It contains 13% nitrogen 44-46% potassium oxide.

### Calcium nitrate

Produced by treating limestone with nitric acid, calcium nitrate is used to remedy deficiencies in calcium and reduce soil acidity. It contains 15% nitrogen and 19% water soluble calcium.

### Methylene urea

Prepared by reacting urea with formaldehyde, methylene urea contains 37-40% nitrogen. It can be used to provide slow release nitrogen over a period of 2-3 months depending on the ambient temperature.

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# Absolute Advanced

Conventional release micro-granular fertiliser

The Absolute Advanced range of micro-granular, homogenous fertilisers are formulated specifically for use on high value and fine turf areas such as golf greens, bowls greens, cricket squares, grass tennis courts and ornamental lawns.

With a wide range of analyses, the Absolute Advanced range of fertilisers can be used to give precise control of turf nutrient input throughout the year. The micro-granules (1-2mm) spread evenly and provide consistent nutrient release throughout their 6-8 week longevity.



### Key benefits

- A conventional release fertiliser with a 6-8\*week longevity
- A wide range of analyses to provide year-round nutrition
- Homogenous micro-granules for even and consistent coverage
- Formulated for use on all fine turf surfaces

\*Depending on environmental factors

### Technical information

Absolute Advanced fertilisers contain ammoniacal and ureic nitrogen sources to give both a rapid turf response and consistent growth throughout their longevity. Each granule containing the nutritional analysis to ensure even growth across the surface. To promote healthy growth throughout the year, nitrogen rates and additional nutrients, such as calcium, sulphur and iron are varied within the product range to match the growth requirements at the recommended application times.

- Balanced nitrogen rates to match expected plant growth requirements
- Contains secondary plant nutrients to promote healthy plant growth

Dual nitrogen source achieves a rapid turf response and consistent growth

	Entrench	Fortify	Generate	Green	Legion	Thrive
Total nitrogen (N)	3.0%	4.0%	12.0%	3.0%	5.0%	8.0%
Ammoniacal nitrogen (N)	2.0%	3.0%	9.9%	2.0%	4.0%	7.0%
Ureic nitrogen (N)	1.0%	1.0%	2.1%	1.0%	1.0%	1.0%
Phosphorus pentoxide (P <sub>2</sub> O <sub>5</sub> ) Soluble in neutral ammonium citrate and water	-	-	3.0%	-	5.0%	-
Potassium oxide (K <sub>2</sub> O) Soluble in water	22.0%	7.0%	9.0%	6.0%	10.0%	-
Magnesium oxide (MgO)	4.0%	3.3%	2.0%	-	-	3.3%
Calcium oxide (CaO)	10.0%	13.1%	8.7%	6.7%	10.7%	13.3%
Sulphur trioxide (SO <sub>3</sub> )	10.4%	23.5%	35.0%	28.0%	31.0%	33.0%
Iron (Fe)	0.2%	4.0%	2.0%	9.0%	6.0%	3.0%

Nutrient input (kg/ha)	N	P	K	N	P	K	N	P	K	N	P	K	N	P	K	N	P	K
25g/m <sup>2</sup>	8	-	55	10	-	18	30	8	23	8	-	15	13	13	25	20	-	-
30g/m <sup>2</sup>	9	-	66	12	-	21	36	9	27	9	-	18	15	15	30	24	-	-
35g/m <sup>2</sup>	11	-	77	14	-	25	42	11	32	11	-	21	18	18	35	28	-	-

Longevity	Granule size	SGN	Cutting height	Application rate	Bag coverage	Bags/ha
6-8 weeks	1-2mm	150	All turf	25-35g/m <sup>2</sup>	800-571m <sup>2</sup>	13-18

Entrench 3-0-22+4MgO	J	F	M	A	M	J	J	A	S	O	N	D
Fortify 4-0-7+3MgO+4Fe	J	F	M	A	M	J	J	A	S	O	N	D
Generate 12-3-9+2MgO+2Fe	J	F	M	A	M	J	J	A	S	O	N	D
Green 3-0-6+9Fe	J	F	M	A	M	J	J	A	S	O	N	D
Legion 5-5-10+6Fe	J	F	M	A	M	J	J	A	S	O	N	D
Thrive 8-0-0+3MgO+3Fe	J	F	M	A	M	J	J	A	S	O	N	D



# Absolute Premier

Conventional release mini-granular fertiliser

The Absolute Premier range of mini-granular, homogenous fertilisers are formulated for use on a variety of grass covered areas such as golf fairways, hard wearing winter sports pitches including football and rugby, racecourses, utility lawns and other amenity areas.

The range contains analyses which provide turf with year-round nutrition in a variety of situations, supported by reliable and consistent nutrient sources. The mini-granules (1-3mm) spread evenly, helping to ensure a consistent response to fertiliser application right across the turf surface.



## Key benefits

- A conventional release fertiliser with a 4-8\*week longevity
- Homogenous mini-granules for an even and consistent coverage
- Broad range of analyses for use all year
- Suitable for a wide range of turf surfaces

\*Depending on fertiliser analysis and environmental factors

## Technical information

Absolute Premier fertilisers contain a blend of ammoniacal nitrogen, phosphorus, potassium, calcium, and sulphur. The broad range of analyses has been developed to suit a variety of situations throughout the year. Ammoniacal nitrogen is the primary nitrogen source and, alongside the fast breakdown of the homogenous granules, this ensures a rapid turf response. The differing proportions of phosphorus, potassium, and secondary nutrients in each product help to encourage healthy growth.

- Rapid turf response
- Fast break down of granules facilitates rapid plant uptake

Contains primary and secondary plant nutrients to support healthy growth

	3-3-12	6-9-6	9-7-7	12-6-6	20-10-10
Total nitrogen (N)	3.0%	6.0%	9.0%	12.0%	20.0%
Ammoniacal nitrogen (N)	3.0%	6.0%	7.0%	12.0%	10.7%
Ureic nitrogen (N)	-	-	-	-	9.3%
Phosphorus pentoxide (P <sub>2</sub> O <sub>5</sub> ) Soluble in neutral ammonium citrate and water	3.0%	9.0%	7.0%	6.0%	10.0%
Potassium oxide (K <sub>2</sub> O) Soluble in water	12.0%	6.0%	7.0%	6.0%	10.0%
Calcium oxide (CaO)	12.0%	13.2%	10.6%	8.0%	2.7%
Sulphur trioxide (SO <sub>3</sub> )	21.6%	25.8%	32.7%	38.5%	23.0%

Nutrient input (kg/ha)	N	P	K	N	P	K	N	P	K	N	P	K	N	P	K
25g/m <sup>2</sup>	8	8	30	15	23	15	23	18	18	30	15	15	50	25	25
30g/m <sup>2</sup>	9	9	36	18	27	18	27	21	21	36	18	18	60	30	30
35g/m <sup>2</sup>	11	11	42	21	32	21	32	25	25	42	21	21	70	35	35

Product	Longevity	Granule size	SGN	Cutting height	Application rate	Bag coverage	Bags/ha
3-3-12, 6-9-6, 9-7-7, 12-6-6	4-6 weeks	1-3mm	200	>6mm	25-35g/m <sup>2</sup>	800-571m <sup>2</sup>	13-18
20-10-10	6-8 weeks						

3-3-12	J	F	M	A	M	J	J	A	S	O	N	D
6-9-6	J	F	M	A	M	J	J	A	S	O	N	D
9-7-7	J	F	M	A	M	J	J	A	S	O	N	D
12-6-6	J	F	M	A	M	J	J	A	S	O	N	D
20-10-10	J	F	M	A	M	J	J	A	S	O	N	D



# Evolution Naturelle Micro

Premium range micro-granular organo-mineral fertilisers

Evolution Naturelle is a premium range of organo-mineral fertilisers designed to release nitrogen gradually over time and to provide essential nutritional elements to aid healthy plant growth. Use of Evolution Naturelle Micro fertilisers encourages a dense sward through the development of shorter, firm leaf blades and increased tillering.

The micro-granular formulation allows Evolution Naturelle Micro to be used on all sports and amenity turf surfaces, in particular fine turf such as golf greens. In addition to providing nitrogen and other essential plant nutrients, these organo-mineral fertilisers stimulate soil microorganisms and support a diverse soil ecosystem.



## Key benefits

- Provides a slow-release source of nitrogen over time
- Provides essential nutrients to aid healthy plant growth
- Encourages a denser sward with firmer leaf blades
- Suitable for use on all sports and amenity turf surfaces including fine turf



Generates increased soil microorganism activity which helps reduce thatch build-up

## Technical information

Evolution Naturelle Micro provides a phased release of nitrogen gradually over time thanks to the inclusion of multiple nitrogen sources including ammonium, urea, and organic nitrogen. Increased microorganism activity in the soil generated by the organic matter releases further amounts of plant available nitrogen and helps to reduce the build-up of thatch.

The phased release of nitrogen results in lower emissions of ammonia and nitrous oxide in comparison to mineral fertilisers and a reduction in the potential for leaching. This means that more of the applied nitrogen is available for plant use over time.

- Includes multiple nutrient sources which deliver a phased release of nitrogen
- Decreases potential nitrogen losses to the environment

	NK	Renovate	Spring	Summer	Autumn
Total nitrogen (N)	8.1%	4.0%	16.0%	10.0%	5.1%
Ammoniacal nitrogen (N)	1.5%	1.5%	3.3%	2.5%	-
Ureic nitrogen (N)	4.2%	-	11.1%	5.6%	2.8%
Organic nitrogen (N)	2.4%	2.5%	1.6%	1.9%	2.3%
Phosphorus pentoxide (P <sub>2</sub> O <sub>5</sub> ) Soluble in neutral ammonium citrate and water	-	3.0%	4.2%	-	-
Potassium oxide (K <sub>2</sub> O) Soluble in water	8.1%	4.0%	8.1%	15.1%	25.1%
Magnesium oxide (MgO)	3.0%	3.1%	2.0%	2.0%	2.0%
Calcium oxide (CaO)	-	10.2%	-	0.0%	-
Sulphur trioxide (SO <sub>3</sub> )	10.2%	2.5%	12.32%	7.2%	-
Iron (Fe)	2.5%	0.5%	0.5%	0.5%	1.0%
Organic matter	30.2%	36.3%	20.1%	27.5%	27.9%
Carbon to nitrogen ratio	1.9	4.5	0.6	1.4	2.7

Nutrient input (kg/ha)	N	P	K	N	P	K	N	P	K	N	P	K	N	P	K
25g/m <sup>2</sup>	20	-	20	10	8	10	40	11	20	25	-	38	13	-	63
30g/m <sup>2</sup>	24	-	24	12	9	12	48	13	24	30	-	45	15	-	75
35g/m <sup>2</sup>	28	-	28	14	11	14	56	15	28	35	-	53	18	-	88
40g/m <sup>2</sup>	32	-	32	16	12	16	64	17	32	40	-	60	20	-	100
45g/m <sup>2</sup>	36	-	36	18	14	18	72	19	36	45	-	68	23	-	113
50g/m <sup>2</sup>	40	-	41	20	15	20	80	21	41	50	-	76	25	-	126

Product	Longevity	Granule size	SGN	Cutting height	Application rate	Bag coverage	Bags/ha
NK, Spring, Summer, Autumn	6-10 weeks	1-2mm	150	All turf	25-50g/m <sup>2</sup>	800-400m <sup>2</sup>	13-25
Renovate	3-6 weeks						

NK 8-0-8	J	F	M	A	M	J	J	A	S	O	N	D
Renovate 4-3-4	J	F	M	A	M	J	J	A	S	O	N	D
Spring 16-4-8	J	F	M	A	M	J	J	A	S	O	N	D
Summer 10-0-15	J	F	M	A	M	J	J	A	S	O	N	D
Autumn 5-0-25	J	F	M	A	M	J	J	A	S	O	N	D



# Evolution Naturelle Sport

A premium range of organo-mineral outfield fertilisers

Evolution Naturelle Sport is a premium range of organo-mineral fertilisers designed for use on all sports outfield and amenity turf surfaces. With a range of analyses, Evolution Naturelle Sport can supply slow-release nitrogen and essential plant nutrients throughout the year. The slow release organo-mineral nutrient sources release nitrogen for up to 14 weeks, helping to support healthy plant growth. In addition to providing nitrogen and other essential plant nutrients, these organo-mineral fertilisers stimulate soil microorganisms and support a diverse soil ecosystem.



## Key benefits

- Provides a slow release of nitrogen over time
- Provides essential nutrients to aid healthy plant growth
- Encourages a denser sward with firmer leaf blades
- Suitable for use on all sports outfield and amenity turf surfaces

## Technical information

Evolution Naturelle Sport provides a phased release of nitrogen gradually over time thanks to the inclusion of multiple nitrogen sources including ammonium, urea, and organic nitrogen. Increased microorganism activity in the soil generated by the organic matter releases further amounts of plant available nitrogen and helps to reduce the build-up of thatch.

The phased release of nitrogen results in lower emissions of ammonia and nitrous oxide in comparison to mineral fertilisers and a reduction in the potential for leaching. This means that more of the applied nitrogen is available for plant use over time.

- Generates increased soil microorganism activity which helps reduce thatch build-up
- Decreases potential nitrogen losses to the environment

	Allsport	Spring	Summer	Autumn
Total nitrogen (N)	12.0%	16.1%	10.0%	7.1%
Ammoniacal nitrogen (N)	2.4%	3.1%	2.5%	-
Ureic nitrogen (N)	7.4%	11.2%	5.6%	5.0%
Organic nitrogen (N)	2.2%	1.8%	1.9%	2.1%
Phosphorus pentoxide (P <sub>2</sub> O <sub>5</sub> ) Soluble in neutral ammonium citrate and water	4.1%	4.0%	-	-
Potassium oxide (K <sub>2</sub> O) Soluble in water	8.0%	8.0%	15.1%	21.1%
Magnesium oxide (MgO)	2.0%	2.0%	2.0%	2.0%
Sulphur trioxide (SO <sub>3</sub> )	4.1%	5.8%	7.2%	-
Iron (Fe)	0.5%	0.5%	0.5%	0.5%
Organic matter	31.9%	25.3%	27.5%	29.4%
Carbon to nitrogen ratio	1.6	0.8	1.4	2.1

Nutrient Input (kg/ha)	N	P	K	N	P	K	N	P	K	N	P	K
20g/m <sup>2</sup>	24	10	20	32	3	16	20	-	30	14	-	42
25g/m <sup>2</sup>	30	12	24	40	4	20	25	-	38	18	-	53
30g/m <sup>2</sup>	36	14	28	48	5	24	30	-	45	21	-	63
35g/m <sup>2</sup>	42	16	32	56	6	28	35	-	53	25	-	74
40g/m <sup>2</sup>	48	18	36	64	7	32	40	-	60	28	-	84
45g/m <sup>2</sup>	54	21	40	72	8	36	45	-	68	32	-	95
50g/m <sup>2</sup>	60	23	44	81	9	40	50	-	76	36	-	106

Product	Longevity	Granule size	SGN	Cutting height	Application rate	Bag coverage	Bags/ha
Allsport, Spring, Summer	8-12 weeks	1-4mm	250	>12mm	25-50g/m <sup>2</sup>	1000-400m <sup>2</sup>	10-25
Autumn	12-14 weeks						

Allsport 12-4-8	J	F	M	A	M	J	J	A	S	O	N	D
Spring 16-4-8	J	F	M	A	M	J	J	A	S	O	N	D
Summer 10-0-15	J	F	M	A	M	J	J	A	S	O	N	D
Autumn 7-0-21	J	F	M	A	M	J	J	A	S	O	N	D



Includes multiple nutrient sources which deliver a phased release of nitrogen

# Evolution xtra

UFLEXX® stabilised release fertiliser

Evolution xtra is specially formulated to protect against all three forms of nitrogen loss - leaching, denitrification and volatilization - this allows time for nitrogen (N) to move into the rootzone and stay there for longer, enabling an increased uptake of nutrients and enhanced efficiency.

Inhibitors within the UFLEXX® stabilized nitrogen, slow the conversion of nutrients by physical and chemical effects or by the action of microorganisms. Nitrogen slowly breaks down in the soil to become available to the turf. Both turf growth and the breakdown process are governed by temperature, meaning that nitrogen is supplied in accordance with the requirements of the turf.



## Key benefits

- Efficient use of nitrogen
- Lasts up to 16 weeks
- Chloride free
- Low scorch potential
- Reduced environmental impact

## Technical information

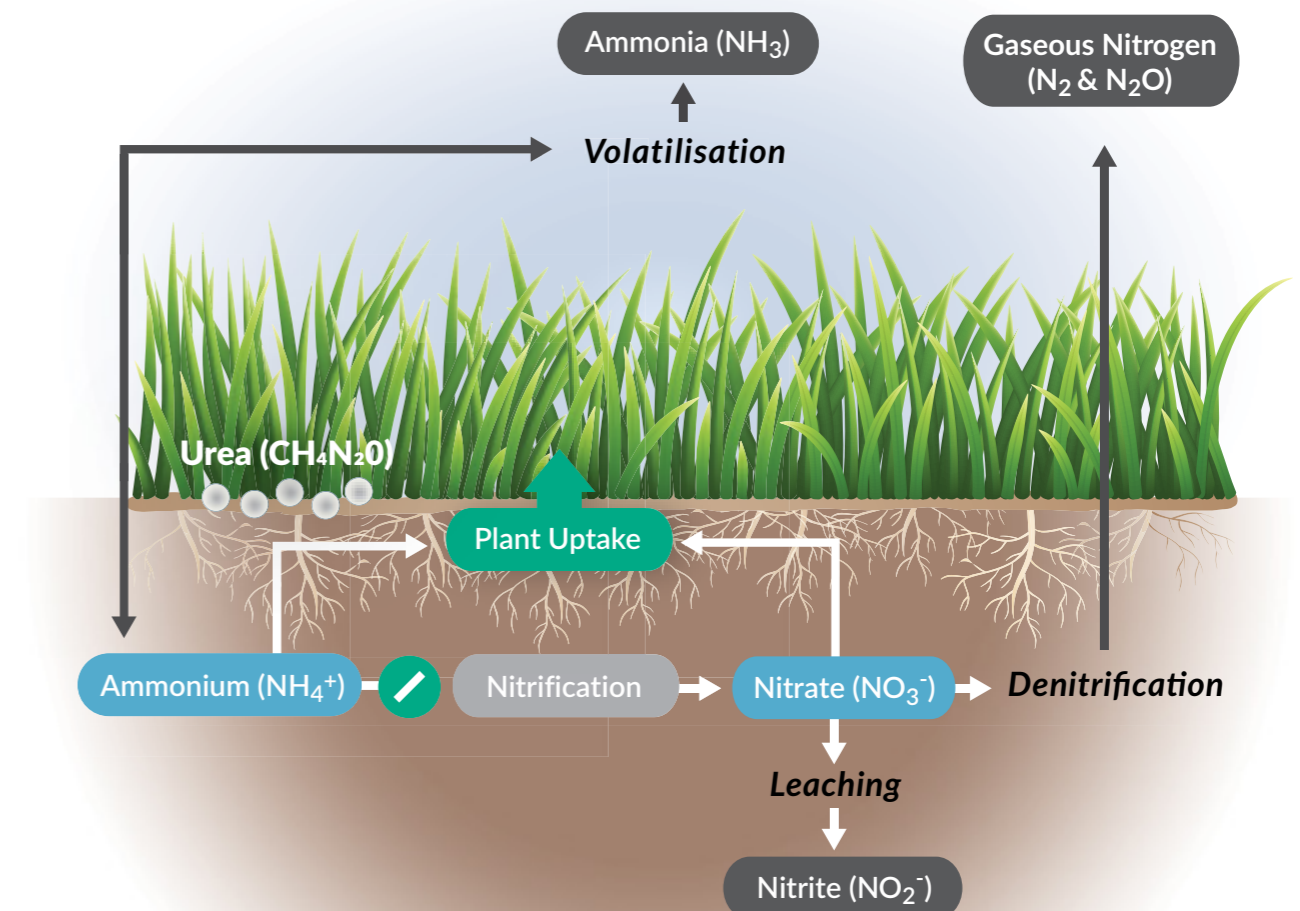
Reduces volatilisation via urease inhibitors which work while the fertiliser is on the turf surface, slowing the enzyme urease from breaking down the applied urea into an ammonium form and into ammonia gas, which can be easily lost via volatilisation. This allows the urea to move down into the rootzone through irrigation or via rainfall.

Reduces denitrification and leaching through nitrification inhibitors which slow down soil bacteria from converting ammonium nitrogen into nitrate. Nitrogen in the form of nitrate is highly susceptible to denitrification and leaching.

- Urease and nitrification inhibitors
- Low water volumes
- Cost effective

**Efficient use of nitrogen with reduced environmental impact**

## How it works



46-0-0

Total nitrogen (N)	46.0%	Nutrient input (kg/ha)			
UFLEXX® stabilised urea nitrogen (N)	46.0%	N	P	K	
		10g/m²	46	-	0
		15g/m²	69	-	0
		20g/m²	92	-	0

Product	Longevity	Granule size	SGN	Cutting height	Application rate	Bag coverage	Bags/ha
46-0-0	8-16 weeks	2-4mm	300	All turf	10-20g/m <sup>2</sup>	2000-100m <sup>2</sup>	5-10

46-0-0	J	F	M	A	M	J	J	A	S	O	N	D
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# Evolution Controlled Fine

Fine granular fertiliser with longevities ranging from 12-16 weeks

Evolution Controlled Fine consists of nutrients packaged in a polyurethane polymer coated granule that are released over an extended period. Backed by research, the unique coating technology has consistently been a market leader.

The range provides a fine 125 SGN granulation for consistent distribution during application and is suitable for use on close mown turf such as cricket squares, golf greens, approaches, tees, and bowling greens. With longevities ranging from 12-16 weeks, Evolution Controlled Fine is a mini granule that is an excellent choice for providing a predictable and dependable nutrient release over a prolonged period.



### Key benefits

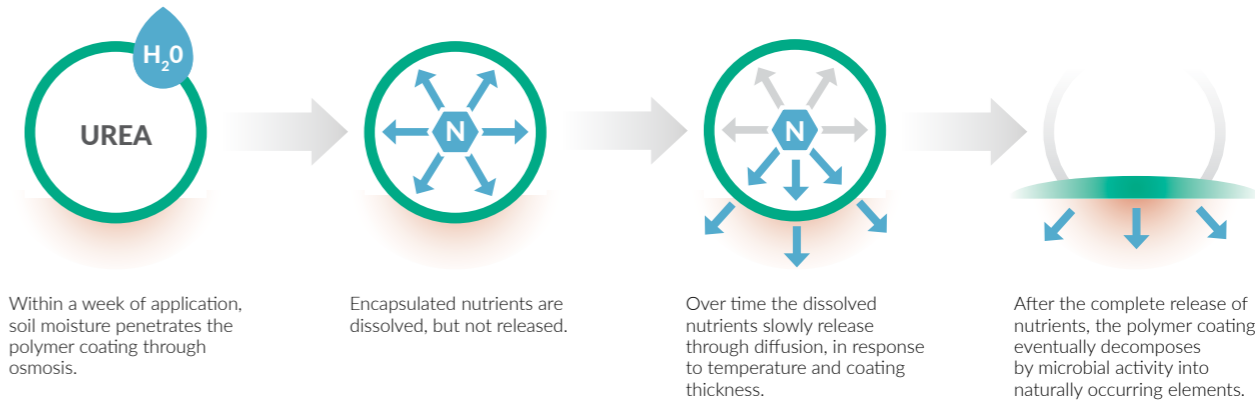
- Formulated for use on fine turf surfaces
- Not affected by moisture
- Response to match the growth
- Reduced environmental impact
- Chloride free

### Technical information

The coated granule utilises a unique patented reactive layers coating technology which releases nutrients via diffusion, regulated by soil temperature and coating thickness, for precise and lasting nutrient delivery. Additional nutrition from multiple sources, including ammonium, urea and potassium nitrate provides a complete nutritional package to suit different requirements through various nutrient release stages for an optimum growth response.

- Reactive layers coating technology
- Contains secondary plant nutrients calcium and magnesium to promote healthy plant growth

### How it works



	25-5-10	14-0-28
Total nitrogen (N)	25.0%	14.0%
Polymer coated urea	16.25%	9.1%
Ammoniacal nitrogen (N)	2.0%	-
Ureic nitrogen (N)	3.85%	0.2%
Nitrate (N)	2.9%	4.7%
Phosphorus pentoxide (P <sub>2</sub> O <sub>5</sub> ) Soluble in neutral ammonium citrate and water	5.0%	-
Potassium oxide (K <sub>2</sub> O) Soluble in water	10.0%	28.0%
Magnesium oxide (MgO)	2.0%	2.0%
Calcium oxide (CaO)	0.6%	5.8%
Sulphur trioxide (SO <sub>3</sub> )	4.0%	13.9%
Controlled release nitrogen (% of Total N)	65.0%	65.0%

Nutrient input (kg/ha)	N	P	K	N	P	K
25g/m <sup>2</sup>	63	13	25	35	-	70
30g/m <sup>2</sup>	75	15	30	42	-	84
35g/m <sup>2</sup>	88	18	35	49	-	98

Product	Longevity	Granule size	SGN	Cutting height	Application rate	Bag coverage	Bags/ha
25-5-10 14-0-28	12-16 weeks	0.7-1.9mm	125	All turf	25-35g/m <sup>2</sup>	571-800m <sup>2</sup>	13-18

25-5-10	J	F	M	A	M	J	J	A	S	O	N	D
14-0-28	J	F	M	A	M	J	J	A	S	O	N	D



# Evolution Controlled

Outfield fertiliser with longevities ranging from 12-28 weeks

Evolution Controlled consists of nutrients packaged in a polyurethane polymer coated granule, that are released over an extended period, backed by research the unique coating technology has consistently been a market leader.

Providing a consistent and gradual release of nutrients from the polymer membrane that coats each granule this range of fertilisers is an outfield 250 SGN granulation ideally suited for sports pitches, racecourses, golf fairways, tees and general amenity areas. With longevities ranging from 12-28 weeks, Evolution Controlled is an excellent choice for providing consistent, predictable, and dependable nutrient release over a prolonged period.



### Key benefits

- Response to match plant growth
- Not affected by moisture
- Reduced environmental impact
- Chloride free

### Technical information

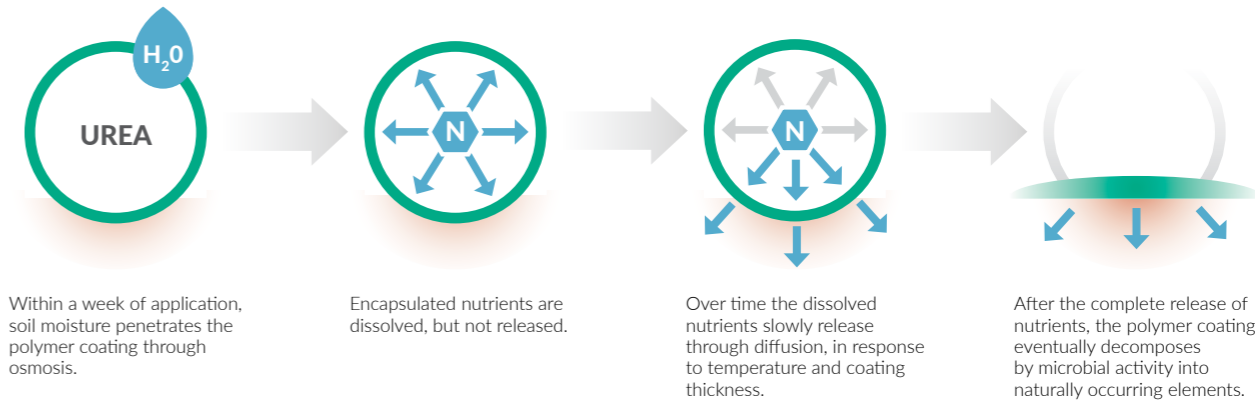
The coated granule utilises a unique patented reactive layers coating (RLC) technology which releases nutrients via diffusion, regulated by soil temperature and coating thickness, for precise and lasting nutrient delivery.

Additional nutrition from multiple sources, ammonium, urea and potassium nitrate, provide a complete nutritional package to suit different requirements through various nutrient release stages for an optimum growth response.

- Reactive layers coating technology
- Multiple nitrogen sources for a balanced release and growth response

Contains secondary plant nutrients Calcium and Magnesium to promote healthy plant growth

### How it works



	15-0-30	25-5-15	30-5-15	18-0-32
Total nitrogen (N)	15.0%	25.0%	30.0%	18.0%
Polymer Coated Urea	6.4%	16.3%	22.5%	13.5%
Ammoniacal nitrogen (N)	-	2.0%	2.0%	-
Ureic nitrogen (N)	6.0%	3.9%	1.2%	-
Nitrate (N)	2.6%	2.8%	4.3%	4.5%
Phosphorus pentoxide (P <sub>2</sub> O <sub>5</sub> ) Soluble in neutral ammonium citrate and water	-	5.0%	5.0%	-
Potassium oxide (K <sub>2</sub> O) Soluble in water	30.0%	15.0%	15.0%	32.0%
Magnesium oxide (MgO)	1.6%	1.0%	0.5%	0.5%
Calcium oxide (CaO)	1.1%	0.8%	0.2%	0.4%
Sulphur trioxide (SO <sub>3</sub> )	20.8%	11.9%	0.8%	14.2%
Controlled release nitrogen (% of Total N)	65.0%	65.0%	75.0%	75.0%

Nutrient input (kg/ha)	N	P	K	N	P	K	N	P	K	N	P	K
25g/m <sup>2</sup>	38	-	75	63	13	38	75	13	38	45	-	80
30g/m <sup>2</sup>	45	-	90	75	15	45	90	15	45	54	-	96
35g/m <sup>2</sup>	53	-	105	88	18	53	105	18	53	63	-	112

Product	Longevity	Granule size	SGN	Cutting height	Application rate	Bag coverage	Bags/ha
15-0-30 25-5-15	12-16 weeks	1.9-3.4mm	250	>12mm	25-35g/m <sup>2</sup>	571-800m <sup>2</sup>	13-18
30-5-15 18-0-32	24-28 weeks						

15-0-30	J	F	M	A	M	J	J	A	S	O	N	D
25-5-15	J	F	M	A	M	J	J	A	S	O	N	D
30-5-15	J	F	M	A	M	J	J	A	S	O	N	D
18-0-32	J	F	M	A	M	J	J	A	S	O	N	D

# Evolution Naturelle Base

Amendment additives for growing media and soils

Evolution Naturelle Base is a premium range of organo-mineral fertilisers designed to be used as topdressing or as amendment additives for growing media and soils. The slow release organo-mineral fertilisers in the range provide nutrients for up to 4 months helping to support healthy plant growth. In addition to providing nitrogen and other essential plant nutrients, these organo-mineral fertilisers stimulate soil microorganisms and support a diverse soil ecosystem.

The Evolution Naturelle Base range also includes a Zeorite product which can be used alongside fertilisers to enhance water holding, oxygen and nutrient holding capacity in soils and constructed rootzones.



### Key benefits

- Designed as amendment additives for growing media and soils
- Provides slow release of nutrients for up to 4 months
- Creates a healthy rootzone by stimulating soil microorganisms
- Zeorite provides additional physical and chemical improvements to rootzones

### Technical information

Evolution Naturelle Base fertilisers provide a phased release of nitrogen gradually over time thanks to the inclusion of multiple nitrogen sources including ammonium, urea, and organic nitrogen.

The organic matter content and low carbon to nitrogen ratio of the fertilisers promotes stimulation of essential soil microorganisms which further supports plant metabolic function and a diverse soil ecosystem.

The water, oxygen and nutrient holding abilities of Zeorite are due to the large volume to surface area of the zeolite granules making this an excellent amendment for maintaining the physical and chemical integrity of soils and rootzones.

- Supports plant metabolic function through increased soil biology activity
- Increases the amount of air and water held in the rootzone

“  
**Phased release of nitrogen due the inclusion of multiple nitrogen sources**”

	Planter	Preseed	Base	Zeorite
Total nitrogen (N)	7.2%	8.0%	4.0%	n/a
Ammoniacal nitrogen (N)	1.9%	4.1%	-	n/a
Ureic nitrogen (N)	3.5%	1.8%	-	n/a
Organic nitrogen (N)	1.8%	2.1%	4.0%	n/a
Phosphorus pentoxide (P <sub>2</sub> O <sub>5</sub> ) Soluble in neutral ammonium citrate and water	6.0%	12.0%	3.0%	n/a
Potassium oxide (K <sub>2</sub> O) Soluble in water	14.0%	8.0%	2.0%	n/a
Magnesium oxide (MgO)	3.0%	2.0%	-	n/a
Sulphur trioxide (SO <sub>3</sub> )	15.8%	8.0%	-	n/a
Organic matter	25.8%	30.1%	55.0%	n/a
Carbon to nitrogen ratio	1.8	1.9	6.9	n/a

Nutrient input (kg/ha)	N	P	K	N	P	K	N	P	K	N	P	K
20g/m <sup>2</sup>	14	12	28	16	24	16	n/a	n/a	n/a	n/a	n/a	n/a
50g/m <sup>2</sup>	36	30	70	40	60	40	20	15	10	n/a	n/a	n/a
100g/m <sup>2</sup>	n/a	n/a	n/a	n/a	n/a	n/a	40	30	20	n/a	n/a	n/a

Product	Longevity	Granule size	SGN	Cutting height	Application rate	Bag coverage	Bags/ha
Planter 7-6-14	3-4 months	1-4mm	250	n/a	20-60g/m <sup>2</sup>	1000-333m <sup>2</sup>	10-30
Preseed 8-12-8	6-10 weeks			All turf	20-50g/m <sup>2</sup>	1000-400m <sup>2</sup>	10-25
Base 4-3-2	3-4 months				50-200g/m <sup>2</sup>	400-100m <sup>2</sup>	25-100
Zeorite	n/a	0.1-0.7mm	40		35-100g/m <sup>2</sup>	571-200m <sup>2</sup>	18-50

Planter 7-6-14	J	F	M	A	M	J	J	A	S	O	N	D
Preseed 8-12-8	J	F	M	A	M	J	J	A	S	O	N	D
Base 4-3-2	J	F	M	A	M	J	J	A	S	O	N	D
Zeorite	J	F	M	A	M	J	J	A	S	O	N	D



# TRUCAL®

Improve nutrient availability and soil structure

TRUCAL® can be used to improve nutrient availability and soil structure by naturally neutralising soil acidity. TRUCAL® is a granular limestone containing 99% calcium carbonate which has been carefully crushed and screened. The fine granules are effective and easy to spread.

TRUCAL® works to neutralise soil acidity by reducing the amount of acidifying free hydrogen ions. The high neutralising value of 55.6% and fine granulation of Trucal® improve its effectiveness and ease of use.



### Key benefits

- Improves nutrient availability by increasing soil pH
- Neutralises soil acidity
- High neutralising value of 55.6%
- Fine granulation for ease of spreading

TRUCAL®	
Calcium oxide (CaO)	55.60%
Sulphur trioxide (SO <sub>3</sub> )	0.30%

Longevity	Granule size	Cutting height	Application rate	Bag coverage	Bags/ha
n/a	0.6-1.2mm	All turf	50-120g/m <sup>2</sup> for established turf	500-208m <sup>2</sup>	20-240
			50-1000g/m <sup>2</sup> for pre-seeding or other areas	500-25m <sup>2</sup>	20-400

\*Total application amount over time depends on the current pH, the target pH and the soil type. Applications should be made annually or biannually until the requirement is met and incorporated into the soil where possible.

TRUCAL®	J	F	M	A	M	J	J	A	S	O	N	D
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# Potassium nitrate granules

Ideal when nitrogen is needed but soil temperatures are low

This 100% Potassium nitrate granular fertiliser contains no sulphur and is ideal for use in the autumn, winter, or early spring when soil temperatures are still low, but the grass plant is actively growing. Low application rates enable nitrogen inputs to be tailored to grass requirements.

Nitrate is the most plant available form of nitrogen meaning that plants benefit rapidly from applications of Potassium Nitrate granules even at relatively low temperatures. The high proportion of potassium in this fertiliser assists with boosting soil potassium levels and increasing grass turgidity to improve winter hardiness and disease resistance.



### Key benefits

- Low application rates for tailored nitrogen inputs
- Contains no sulphur
- Helps to increase leaf blade turgidity
- Improves hardiness and disease resistance

Potassium nitrate granules	
Total Nitrogen (N)	13%
Nitric nitrogen (N)	13%
Potassium oxide (K <sub>2</sub> O) Soluble in water	46%



Longevity	Granule size	SGN	Cutting height	Application rate	Bag coverage	Bags/ha
3-4 weeks	1-2mm	150	All turf	15-30g/m <sup>2</sup>	1,333-667m <sup>2</sup>	8-15

Potassium Nitrate Granules	J	F	M	A	M	J	J	A	S	O	N	D
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Agrovista Amenity are the UK distributor of the full portfolio of granular COMPO EXPERT turf and landscape products, including controlled-release fertiliser, slow-release fertiliser and nitrification inhibitor technology.

COMPO EXPERT offers special mineral fertilisers with optimum product properties that meet the needs of the market. The fertilisers contain a high proportion of immediately available phosphate. They also contain a particularly high proportion of magnesium and trace nutrients. The fine granulation enables better distribution. After application, the granules breakdown quickly and thus have a rapid effect.



Agrovista Amenity stock an extensive portfolio of ICL turf products, as an approved distributor. Which includes a comprehensive range of turf, amenity and landscape fertilisers. The unique controlled release and slow-release technologies deliver nutrients accurately and efficiently.

## Product ranges include

- Fertilis®
- Floranid® Twin
- Easy Green
- Ferro Top®
- Kali Gazon

## Key benefits

- Premium quality granular complex compound fertilisers
- All granules containing major and trace elements
- Fast acting nitrogen source with both ammonium and nitrate N
- Highly available source of phosphate (>80 % water soluble)
- Low in dust and high in granule strength for best spreading properties



## Product ranges include

- Sierraform® GT
- Greenmaster® Pro-Lite®
- Sierrablen® and Sierrablen® Plus
- ProTurf®
- Sportsmaster®
- Greenmaster® Liquid

## Key benefits

- A vast range of solutions to deliver reliable and exemplary results
- Slow release nitrogen, potassium and silica, with trace elements for sustained performance.
- High quality mini-granular fertiliser range for sports and amenity turf
- Controlled release and slow release technologies
- Extensive research and development



For more information contact your local amenity representative or visit [www.agrovista.co.uk/amenity](http://www.agrovista.co.uk/amenity)

For more information contact your local amenity representative or visit [www.agrovista.co.uk/amenity](http://www.agrovista.co.uk/amenity)

# The key functions and factors affecting nutrient availability

## Nitrogen

### Key functions in the plant

- A fundamental component for plant growth, being important for amino acid synthesis and subsequent protein formation
- Formation of nucleic acids
- Synthesis of chlorophyll and ATP (adenosine triphosphate)
- Core role in photosynthesis and energy production

### Factors affecting availability to plant

- Deficiency most common on soils prone to leaching and drought (sandy or light soils with low organic matter)
- Availability is reduced below pH 5.5 and on very alkaline soils
- High rainfall areas or heavily irrigated areas
- Drought affects nutrient uptake
- Transient deficiencies can occur during periods of rapid growth where demand exceeds the rate of nitrogen uptake
- Compacted soils and areas of poor drainage affect root development and subsequent nitrogen uptake

## Phosphorus

### Key functions in the plant

- Key component of ATP (adenosine tri-phosphate) which is used in the energy transfer process within the plant
- Involved in nucleic acid formation, protein synthesis and carbohydrate metabolism
- Formation of cell membranes, phospholipids
- Important role in stimulating early growth and development

### Factors affecting availability to plant

- Deficiencies can occur during periods of rapid growth or during cold/wet conditions
- Deficiency can also occur in soils with low organic matter
- Compacted or waterlogged soils limit root growth and the ability of the plant to absorb phosphate

## Potassium

### Key functions in the plant

- Maintenance of water balance in the plant, helps regulate cell water content and plant turgor, maintaining stem strength
- Important role in transpiration by controlling stomatal pore opening and closing
- Good mobility in the plant
- Activates enzymes that support plant activities such as energy transfer

### Factors affecting availability to plant

- Low pH soils
- Deficiency can be common at the end of the growing season, especially on light, sandy soils
- Soils with low clay reserves where little K is released, and on sandy or light soils where K can be leached
- Drought and high levels of magnesium reduce uptake

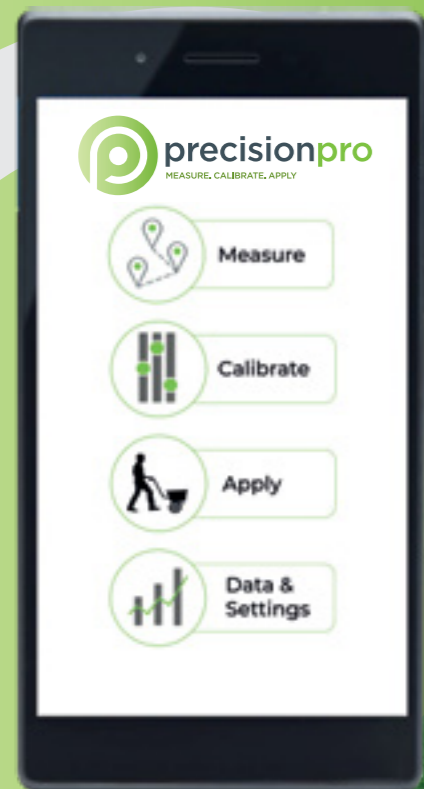
# Granular application technology index

PrecisionPro	28-29
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# precisionpro

*PrecisionPro is a dedicated device with a built in app and mounting kit for sports turf professionals using granular fertiliser spreaders. PrecisionPro helps you to measure your turf areas, calibrate your granular products and assists you to apply more accurately than ever.*



## Measure

With a range of turf areas and unique shapes, calculating the exact area is not always an easy task. Utilising advanced GPS technologies built into smartphones and tablets, the PrecisionPro app is able to accurately calculate the size of a turf area.

'Map mode' detects your location to display your golf course or sports field in satellite view.

Simply use two fingers to zoom into the area you want to measure and start placing markers around the perimeter.

Alternatively, using the built in GPS functionality you can measure the size of any area.

No WiFi or mobile data is required, simply select 'GPS mode'.

If you already know the size of your areas, you can use the 'Manual mode' to store your data.

## Calibrate

With our 'Calibrate' feature in the PrecisionPro app we guide you through each step of the process.

'Calibrate' uses advanced GPS functionality that will tell you when to start and stop the calibration process.

- 1 Enter distance, we recommend 10 meters
- 2 Simply fill the hopper with a measured amount of the granular product you want to calibrate for
- 3 Enter the weight amount on the screen
- 4 The app will then ask you to start walking and open up the spreader
- 5 After you have walked 10m (recommended) the app will tell you to stop
- 6 Enter the remaining weight on screen
- 7 Enter the setting of the spreader i.e. numbers or letters depending on what spreader you are using
- 8 The 'Calibrate' calculation takes place to tell you your application rate
- 9 You can then recalibrate to ensure the correct settings are used

## Apply

No more guesswork about how fast the operator is walking.

PrecisionPro ensures you walk the optimum speed of 3.1mph (5km/h) which also ensures optimal spread width.

The 'Apply' feature will ensure accurate application of any granular product better than ever before, helping you to ensure the correct amount of product is applied to the turf.

Just as important is the angle you keep your spreader at when applying products. PrecisionPro has a built in degree of movement score to help keep your spreader as close to zero as possible. Moving your spreader up and down during your passes will also have major effects of the distribution of products. Keep it level for optimum distribution.



# Spreader settings

## Absolute Advanced

Spreader	Passes	Spread width (m)	Cone	g/m <sup>2</sup>		
				25	30	35
AccuPro® 2000	Single	3.8	6	M	N	O
	Double	3.8	6	J	J ½	K

## Absolute Premier

Spreader	Passes	Spread width (m)	Cone	g/m <sup>2</sup>		
				25	30	35
AccuPro® 2000	Single	4	6	N	O	P
	Double	4	6	K	K ½	L

## Evolution Naturelle Micro

Spreader	Passes	Spread width (m)	Cone	g/m <sup>2</sup>					
				25	30	35	40	45	50
AccuPro® 2000	Single	4	6	O	P	Q	Q½	R	R½
	Double	4	6	L	L½	M	M½	N	O

## Evolution Naturelle Sport

Spreader	Passes	Spread width (m)	Cone	g/m <sup>2</sup>						
				20	25	30	35	40	45	50
AccuPro® 2000	Single	4	6	Q	S	V	X	Y½	Z	-
	Double	4	6	O	O½	P	P½	Q	R	S

## Evolution xtra

Spreader	Passes	Spread width (m)	Cone	g/m <sup>2</sup>	
				15	20
AccuPro® 2000	Single	4.4	4	N	O½
	Double	4.4	4	-	L

## Evolution Controlled Fine

Spreader	Passes	Spread width (m)	Cone	g/m <sup>2</sup>		
				25	30	35
AccuPro® 2000	Single	4	6	M½	N½	P
	Double	4	6	K	L	L½

## Evolution Controlled

Spreader	Passes	Spread width (m)	Cone	g/m <sup>2</sup>		
				25	30	35
AccuPro® 2000	Single	4.6	6	P½	R	S
	Double	4.6	6	M½	N	N½

## Evolution Naturelle Base

Product	Spreader	Passes	Spread width (m)	Cone	g/m <sup>2</sup>			
					20	30	40	50
Base	AccuPro® 2000	Single	4	6	n/a	n/a	n/a	n/a
		Double	4	6	n/a	n/a	n/a	S
Preseed	AccuPro® 2000	Single	4	6	Q	V	Y1/2	n/a
		Double	4	6	O	P	Q	S

## TruCal®

Spreader	Passes	Spread width (m)	Cone	g/m <sup>2</sup>					
				50	60	70	80	90	100
AccuPro® 2000	Single	3.2	6	K½	M	N	N¾	O½	Q
	Double	3.2	6	I½	J	J¼	J½	K	K½

## Potassium nitrate granules

Spreader	Passes	Spread width (m)	Cone	g/m <sup>2</sup>			
				15	20	25	30
AccuPro® 2000	Single	4.3	5	J	K	K½	L
	Double	4.3	5	-	I	I½	J

Calibrated walking pace 5km/h. Settings given as a guideline, individual spreaders may vary.

# Cresco 30SWP

*Brand new, innovative agitation technology*

The 30SWP offers professional performance regardless of whether your spreading salt or fertiliser. It offers a unique agitation system to improve flow of material as well as ergonomic handles, large pneumatic wheels, and a new, large hopper. It is the ideal spreader for contract work and regular usage on larger areas.



## Key benefits

- 3 year limited warranty
- The new spider agitation system
- Complete with a mesh grill
- Ergonomic bull horn style handlebars with cushioned hand grips

## Technical

- Fertilizer capacity 46Kg
- Assembled Dimensions: 130x61x70cm
- Weight: 14kg

**Scan here to view  
spreader settings**



<https://amenity.agrovista.co.uk/spreader-settings/>

# Cresco 30SWS

*Stainless steel professional spreader which maintains a constant and even spread*

The 30SWS has everything the 30SWP has, but with a stainless-steel frame. This will significantly increase the spreaders' longevity of life when working with harsh, corrosive materials such as salt and fertiliser.



## Key benefits

- 3 year limited warranty
- Ergonomic bull handle
- Cushioned on/off lever
- Solid rod linkage
- Wide pneumatic wheels
- Interchangeable sliders

## Technical

Fertiliser and salt are extremely corrosive materials and will break down any metal over time. Having this stainless-steel frame helps to provide this spreader with much-needed protection against corrosion and ensures a long life for the spreader. Specifically, fertiliser will not break down the connection between the main frame and backstand as easily with a stainless-steel frame.

- Fertilizer capacity 46Kg
- Assembled Dimensions: 130x61x70cm
- Weight: 14kg

**Premium quality  
stainless steel  
professional spreader**

# Plant nutrient and soil analyses

## Leaf SAP testing

*Plant nutrient tests and soil analyses are used to diagnose nutrient requirements and provide information for adjusting fertiliser programmes.*

SAP analysis measures the nutrient concentration in the leaf sap and can be used to forecast nutrient deficiencies.

A SAP analysis can tell you the current uptake of nutrients, highlighting any deficiencies or excesses, long before visible symptoms first appear in the grass. It serves to highlight the nutrients which the grass is able to use for growth at that moment. It can also indicate nutrient imbalances in the soil and provide information for selecting fertiliser.

### Factors affecting mineral uptake:

- Soil pH
- Nutrient imbalances
- Release of fertilisers
- Soil structure
- Root development
- Soil microbial life
- Environmental conditions; temperature, light, moisture and nutrient uptake

There are two kinds of nutrients in plants, dissolved salts which relate to current uptake for plant development and fixed nutrients found in organic compounds which are much less available for plant development. The SAP test mostly measures dissolved salts.

A SAP analysis will quickly show plant uptake of nitrogen inputs. This nutrient is a major limiting factor to healthy grass growth. It is an essential component of amino acids and proteins that are the building blocks of grass growth.

It is also a vital component of chlorophyll, which is required for carbohydrate formation (photosynthesis) and this is responsible for turning the grass green. Under poor growing conditions, such as low soil temperatures, reduced Nitrogen mineralisation and availability can be a major limiting factor to grass growth. This can be readily identified in the SAP analysis.

### Timing:

- First sample to be taken in the early spring, at the start of rapid growth or when a problem is suspected throughout the year
- Subsequent samples should be taken at 2-4 week intervals after any corrective application is made

### Samples:

- Samples of the clippings should be taken from the grass box as soon as possible after early morning cut

### Avoid:

- Sampling within 5 days of a nutrient application
- Sampling within 2 days of a chemical application
- Taking the sample after 10:30am
- Diseased or dead grass
- Soil contamination of the sample

## Soil analysis

*Agronomy Reports is our dedicated service designed to give turf professionals essential information on the nutrient requirements needed for the provision and maintenance of high quality turf.*

We will send one of our specially trained technical advisors to sample your turf. This ensures that the cores are extracted to the specifications of the analytical laboratory, so a meaningful and uniform result can be obtained. At the same time our advisor will have the opportunity to discuss your exact requirements, in terms of the nutrient input and the preferred product type, to fit in with the budget, workforce resources and other criteria.

The soil samples are analysed by an independent laboratory that provide us with the data to compile a comprehensive report on the current nutrient status of your turf. Data from the analysis will be used to compare the results with guideline figures to identify the scale of any remedial measures and is presented in helpful graphics in the report.

Recommendations, based on your specific requirements take the form of a suggested programme that is illustrated in tabular and calendar format. We will then arrange a further meeting with you, where the report and recommendations can be discussed, and the programme finalised.

# Liquid fertiliser index

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# E²PRO Liquid

A high performance liquid fertiliser range

E²PRO Liquid is designed to provide rapid leaf penetration and deliver essential nutrients directly to the plant leaf. E²PRO Liquid can provide nutrients on an as needed basis and can quickly relieve nutrient deficiency symptoms. The superior efficacy of the E²PRO Liquid formulations means that relatively low amounts of nutrients are required. The range is designed for rapid mixing with compatibility between formulations and a variety of other liquid supplements and biostimulants.



### Key benefits

- Delivers essential plant nutrients directly to the leaf
- Quickly relieves nutrient deficiency symptoms
- Designed for rapid mixing
- Widely tank mixable



Enables flexible use of application rates to match plant requirements

### Technical

The high performance of E²PRO Liquid fertilisers is achieved through advanced formulation technology which ensures rapid leaf penetration and plant uptake of nutrients. Use of specially selected high-grade inorganic salts that are very low in impurities also provides long-term storage stability throughout the range. Delivering nutrients directly to the leaves is an effective way of increasing fertiliser use efficiency resulting in lower nutrient input requirements and fewer opportunities for nutrient losses. Foliar delivery of nutrients also enables flexible use of application rates to reflect plant requirements.

- Advanced formulation technology for rapid leaf penetration
- Increases fertiliser use efficiency

	17-0-0	4-4-12	12-4-12	0-0-50	12-0-12	35-0-0	18-0-15
Total nitrogen (N)	17.0%	4.0%	12.0%	-	12.0%	35.0%	18.0%
Ammoniacal nitrogen (N)	-	1.3%	1.3%	-	-	-	-
Ureic nitrogen (N)	17.0%	2.7%	10.7%	-	12.0%	14.5%	6.0%
Methylene (N)	-	-	-	-	-	20.5%	12.0%
Phosphorus pentoxide (P <sub>2</sub> O <sub>5</sub> ) Soluble in neutral ammonium citrate and water	-	4.0%	4.0%	-	-	-	-
Potassium oxide (K <sub>2</sub> O) Soluble in water	-	12.0%	12.0%	50.0%	12.0%	-	15.0%
Iron (Fe)	2.0%	-	-	-	-	-	-
Trace Elements	No	Yes	Yes	No	Yes	No	No
Specific gravity	1.13	1.2	1.21	1.51	1.18	1.25	1.27

Nutrient input (kg/ha)	N	P	K	N	P	K	N	P	K	N	P	K	N	P	K	N	P	K
30l/ha	5	-	-	1	1	4	4	1	4	-	-	15	4	0	4	11	-	5
60l/ha	10	-	-	2	2	7	7	2	7	-	-	30	7	0	7	21	-	11
120l/ha	20	-	-	5	5	14	14	5	14	-	-	60	14	0	14	42	-	22

Product	Longevity	Application rate	Water volume	Pack size	Pack coverage	Packs/ha
17-0-0	4-6 weeks	30-120l/ha	300-10,00l/ha	10l	3,333-833m²	3-12
				200l	67-17ha	0.15-0.60
4-4-12				10l	3,333-833m²	3-12
				10l	3,333-833m²	3-12
12-4-12				200l	67-17ha	0.15-0.60
				10l	3,333-833m²	3-12
0-0-50	4-8 weeks	30-120l/ha	300-10,00l/ha	10l	3,333-833m²	3-12
				10l	3,333-833m²	3-12
12-0-12				200l	67-17ha	0.15-0.60
				10l	3,333-833m²	3-12
35-0-0				10l	3,333-833m²	3-12
				10l	3,333-833m²	3-12
18-0-15				200l	67-17ha	0.15-0.60

17-0-0	J	F	M	A	M	J	J	A	S	O	N	D
4-4-12	J	F	M	A	M	J	J	A	S	O	N	D
12-4-12	J	F	M	A	M	J	J	A	S	O	N	D
0-0-50	J	F	M	A	M	J	J	A	S	O	N	D
12-0-12	J	F	M	A	M	J	J	A	S	O	N	D
35-0-0	J	F	M	A	M	J	J	A	S	O	N	D
18-0-15	J	F	M	A	M	J	J	A	S	O	N	D

# E<sup>2</sup>PRO iNStant

A liquid ammonium sulphate fertiliser designed to promote a rapid turf response

The gradual acidification of soil and to provide additional sulphur to turf grown on sulphur deficient soils. E<sup>2</sup>PRO iNStant helps to create a surface which discourages disease and worm casting activity. It will also favour the cultivation of fine turf species.

The high proportion of sulphur decreases soil pH over time as soil bacteria convert the sulphur to sulphuric acid, resulting in an acidification of the soil environment.



## Key benefits

- Promotes gradual acidification of the soil
- Discourages disease and worm casting
- Favours the cultivation of fine turf species
- Compatible with other liquid fertiliser products

	E <sup>2</sup> PRO iNStant
Total nitrogen (N)	9.6%
Ammoniacal nitrogen (N)	9.6%
Sulphur trioxide (SO <sub>3</sub> )	27.0%

Longevity	Application rate	Water volume	Pack size	Pack coverage	Packs/ha
4-6 weeks	20-100l/ha	200-400l/ha	10l	5,000-1,000m <sup>2</sup>	2-10
			200l	10-2ha	0.1-0.5

E <sup>2</sup> Pro iNStant	J	F	M	A	M	J	J	A	S	O	N	D
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# E<sup>2</sup>PRO resilience

A liquid fertiliser containing calcium magnesium and nitrogen

E<sup>2</sup>PRO resilience is a liquid fertiliser designed specifically to facilitate the rapid uptake of nitrogen, calcium, and magnesium to reduce susceptibility to disease and improve recovery from stress caused by the rigours of play. E<sup>2</sup>PRO resilience has the flexibility to be used through the year on all turf surfaces.

E<sup>2</sup>PRO resilience contains nitrate nitrogen which is highly mobile and immediately available for plant use. The high proportion of calcium in the formulation facilitates nitrate uptake, cell division and cell wall development, helping the plant to become more resilient to disease. Magnesium is the central component of chlorophyll and therefore contributes to the development of a healthy green colour.



## Key benefits

- Reduces turf susceptibility to disease
- Improves recovery from stress
- Can be used throughout the year on all turf surfaces
- Rapidly available nitrogen source

	E <sup>2</sup> PRO resilience
Total nitrogen (N)	13.5%
Nitric nitrogen (N)	13.5%
Magnesium oxide (MgO)	4.0%
Calcium oxide (CaO)	18.0%
Specific gravity	1.46

Longevity	Application rate	Water volume	Pack size	Pack coverage	Packs/ha
2-4 weeks	10-40l/ha	300-450l/ha	10l	10,000-2,500m <sup>2</sup>	1-4
			200l	20-5ha	0.05-0.20

Potassium Nitrate Granules	J	F	M	A	M	J	J	A	S	O	N	D
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# E<sup>2</sup>PRO iNStant

A liquid ammonium sulphate fertiliser designed to promote a rapid turf response

The gradual acidification of soil and to provide additional sulphur to turf grown on sulphur deficient soils. E<sup>2</sup>PRO iNStant helps to create a surface which discourages disease and worm casting activity. It will also favour the cultivation of fine turf species.

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			200l	10-2ha	0.1-0.5

E <sup>2</sup> Pro iNStant	J	F	M	A	M	J	J	A	S	O	N	D
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			200l	20-5ha	0.05-0.20

Potassium Nitrate Granules	J	F	M	A	M	J	J	A	S	O	N	D
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# iNTrench®

Slow and controlled nitrogen release for optimum plant uptake

iNTrench® is a premium liquid fertiliser formulated using advanced nitrogen technology (PiNT) for slow and controlled nitrogen release for optimum plant uptake. Optimised for fine and sports turf, the stable form of nitrogen, plus potassium or calcium provides a long-lasting growth response. iNTrench® delivers up to 10 weeks of improved blade colour and higher quality turf with only 66% nitrogen rate compared to leading competitors.



### Key benefits

- Nitrogen available for up to 10 weeks
- Leading quality scores vs. competition
- Improved blade colour
- Results at 25% to 33% less nitrogen than other slow-release N products
- Minimal nitrate leaching

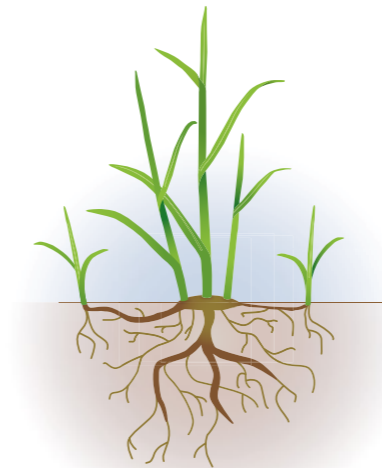
	18-0-9	20-0-0
Total nitrogen (N)	18.0%	20.0%
Nitric nitrogen (N)	1.6%	7.4%
Ureic nitrogen (N)	16.4%	12.8%
Potassium oxide (K <sub>2</sub> O) Soluble in water	9.0%	-
Calcium oxide (CaO)	-	13.2%
Boron (B)	-	0.2%

Nutrient input (kg/ha)	N	P	K	N	P	K
20l/ha	4	-	2	4	-	-
30l/ha	5	-	3	6	-	-
40l/ha	7	-	4	8	-	-
50l/ha	9	-	5	10	-	-

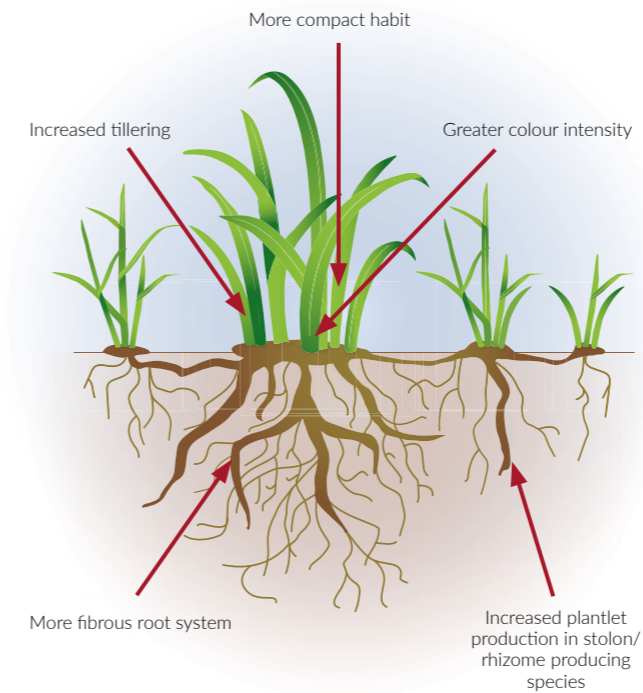
Longevity	Application rate	Water volume	Pack size	Pack coverage	Packs/ha
4-10 weeks	20-100/ha	300-600/ha	10l	5,000-1,000m <sup>2</sup>	2-10

18-0-9	J	F	M	A	M	J	J	A	S	O	N	D
20-0-0	J	F	M	A	M	J	J	A	S	O	N	D

### Nitrate growth habit



### iNTrench growth habit



## Soluble fertiliser index

E <sup>2</sup> PRO soluble	42-43
YaraTera®	44-45
Evolution xtra Soluble	46



# E<sup>2</sup>PRO soluble

High-quality water-soluble fertiliser range

A high-quality water-soluble fertiliser range with rapid and total solubility to encourage easy absorption of nutrients. The broad NPK analysis of E<sup>2</sup>PRO soluble within the range covers a host of nutrient requirements and is a highly efficient means of supplying nutrients for turf. Tank mixable with approved partner products ensuring a flexible approach to a broader nutrient requirement. Accurate measurements enable precise application to the turf.



### Key benefits

- Very economical and cost-effective input
- Delivers essential plant nutrients directly to the leaf
- Quickly relieves nutrient deficiency symptoms
- Designed for rapid mixing
- Widely tank mixable

### Technical

The high performance of E<sup>2</sup>PRO soluble fertilisers is achieved through advanced formulation technology which ensures a complete breakdown of the nutrient powder when added into water. The formulation ensures rapid leaf penetration and plant uptake of nutrients. A complete trace element package is included with each product ensuring the supply of both macro and micro-nutrients. Trace elements are key to a healthy plant and can also help enhance the uptake of other nutrients.

- Advanced formulation technology for rapid leaf penetration
- Increases fertiliser use efficiency
- Enables flexible use of application rates to match plant requirements

Highly soluble formulation for cost effective delivery of essential plant nutrients

35-0-14      27-7-11      25-5-25      17.5-0-35      11-42-11

Total nitrogen (N)	35.0%	27.0%	25.0%	17.5%	11.0%
Nitric nitrogen (N)	4.0%	3.1%	6.1%	6.5%	3.1%
Ammoniacal nitrogen (N)	0.4%	6.9%	0.4%	0.4%	7.9%
Ureic nitrogen (N)	30.6%	17.0%	18.5%	10.6%	-
Phosphorus pentoxide (P <sub>2</sub> O <sub>5</sub> ) Soluble in neutral ammonium citrate and water	-	7.0%	5.0%	-	42.0%
Potassium oxide (K <sub>2</sub> O) Soluble in water	14.0%	11.0%	25.0%	35.0%	11.0%
Boron (B)	0.01%	0.01%	0.01%	0.01%	0.03%
Copper (Cu)	0.01%	0.01%	0.01%	0.01%	0.02%
Iron (Fe)	0.06%	0.06%	0.06%	0.06%	0.15%
Manganese (Mn)	0.04%	0.04%	0.04%	0.04%	0.1%
Molybdenum (Mo)	-	-	-	-	0.01%
Zinc (Zn)	0.01%	0.01%	0.01%	0.01%	0.03%

35-0-14      27-7-11      25-5-25      17.5-0-35      11-42-11

Nutrient input (kg/ha)	N	P	K	N	P	K	N	P	K	N	P	K	N	P	K
20kg/ha	7	-	3	5	1	2	5	1	5	4	-	7	2	8	2
40kg/ha	14	-	6	11	3	4	10	2	10	7	-	14	4	17	4
80kg/ha	28	-	11	22	6	9	20	4	20	14	-	28	9	34	9

35-0-14	J	F	M	A	M	J	J	A	S	O	N	D
27-7-11	J	F	M	A	M	J	J	A	S	O	N	D
25-5-25	J	F	M	A	M	J	J	A	S	O	N	D
17.5-0-35	J	F	M	A	M	J	J	A	S	O	N	D
11-42-11	J	F	M	A	M	J	J	A	S	O	N	D

Longevity	Application Rate	Water Volume	Pack Size	Pack Coverage	Packs/ha
4-6 weeks	20-80kg/ha	300-1000l/ha	20 kg	10,000-2,500m <sup>2</sup>	1-4



# YaraTera®

Containing fully water-soluble primary and secondary nutrients

The YaraTera® range of fertilisers are free-flowing and dissolve quickly and easily in water without leaving any residues. The resulting fertiliser solution can then be applied through a knapsack or vehicle mounted boom sprayer. YaraTera® fertilisers can be tank mixed to provide a bespoke nutrient solution to quickly address nutrient deficiencies or to provide nutrients on an as needed basis.



### Key benefits

- Delivers essential plant nutrients directly to the leaf
- Quickly relieves nutrient deficiency symptoms
- Designed for rapid mixing
- Widely tank mixable

### Technical

The YaraTera® range of fertilisers are perfect for foliar application. The risk of burning or scorching from YaraTera® fertilisers is minimal due to the inclusion of formulations with low electrical conductivities and with low or zero chlorine, sodium, and heavy metals. The range offers flexibility with each product containing a maximum of two plant essential nutrients. This leaves the user free to easily create a specific mix of nutrients designed for their exact requirements.

- Perfect for designing feeding programmes with specific nutrient requirements
- Low scorch risk
- Low chlorine formulations

Compatibility of YaraTera® fertilisers						Calcinit®
KRISTA™ K Plus	KRISTA™ MAG	KRISTA™ MAP	KRISTA™ MKP	KRISTA™ SOP	KRISTA™ Urea	Yes
						No
						No
						No
	Yes	Yes	Yes	Yes	Yes	Yes

	KRISTA™ K Plus	KRISTA™ MAG	KRISTA™ MAP	KRISTA™ MKP	KRISTA™ SOP	KRISTA™ Urea	Calcinit®
Total nitrogen (N)	13.7%	11.0%	12.0%	-	-	46.0%	15.5%
Nitric nitrogen (N)	13.7%	11.0%	-	-	-	-	14.4%
Ammoniacal nitrogen (N)	-	-	12.0%	-	-	-	1.1%
Ureic nitrogen (N)	-	-	-	-	-	46.0%	-
Phosphorus pentoxide (P <sub>2</sub> O <sub>5</sub> ) Soluble in neutral ammonium citrate and water	-	-	61.0%	52.0%	-	-	-
Potassium oxide (K <sub>2</sub> O) Soluble in water	46.3%	-	-	34.0%	51.0%	-	-
Magnesium (MgO)	-	15.0%	-	-	-	-	-
Calcium (CaO)	-	-	-	-	-	-	26.3%
Sulphur (SO <sub>3</sub> )	-	-	-	-	45.0%	-	-

Nutrient input (kg/ha)	KRISTA™ K Plus			KRISTA™ MAG				KRISTA™ MAP			KRISTA™ MKP			KRISTA™ SOP				KRISTA™ Urea			Calcinit®			
	N	P	K	N	P	K	MgO	N	P	K	N	P	K	N	P	K	SO <sub>3</sub>	N	P	K	N	P	K	CaO
12.5kg/ha	2	-	6	1	-	-	2	2	8	-	-	7	4	-	6	6	6	6	-	-	2	-	-	3
25kg/ha	3	-	12	3	-	-	4	3	15	-	-	13	9	-	13	11	9	12	-	-	4	-	-	7
40kg/ha	5	-	19	4	-	-	6	5	24	-	-	21	14	-	20	18	11	18	-	-	6	-	-	11
60kg/ha	8	-	28	7	-	-	9	7	37	-	-	31	20	-	31	27	18	28	-	-	9	-	-	16
70kg/ha	10	-	32	8	-	-	11	8	43	-	-	36	24	-	36	32	23	32	-	-	11	-	-	18

Product	Longevity	Application rate	Water volume	Pack size	Pack coverage	Packs/ha
KRISTA™ K Plus	2-4 weeks	25-50kg/ha	300-600l/ha	25kg	10,000-5000m <sup>2</sup>	1-2
KRISTA™ MAG		12.5-25kg/ha			20,000-10,000m <sup>2</sup>	0.5-1
KRISTA™ MAP		25-50kg/ha			10,000-5000m <sup>2</sup>	1-2
KRISTA™ MKP		25-75kg/ha			10,000-3,333m <sup>2</sup>	1-3
KRISTA™ SOP		25-50kg/ha			10,000-5000m <sup>2</sup>	1-2
KRISTA™ Urea		12.5-25kg/ha			20,000-10,000m <sup>2</sup>	0.5-1
*Calcinit®		25-75kg/ha			10,000-3,333m <sup>2</sup>	1-3

\*Mix with warm water when applying in cold weather and irrigate post application when applying in dry and hot conditions.

KRISTA™ K Plus	J	F	M	A	M	J	J	A	S	O	N	D
KRISTA™ MAG	J	F	M	A	M	J	J	A	S	O	N	D
KRISTA™ MAP	J	F	M	A	M	J	J	A	S	O	N	D
KRISTA™ MKP	J	F	M	A	M	J	J	A	S	O	N	D
KRISTA™ SOP	J	F	M	A	M	J	J	A	S	O	N	D
KRISTA™ Urea	J	F	M	A	M	J	J	A	S	O	N	D
Calcinit®	J	F	M	A	M	J	J	A	S	O	N	D

# Evolution xtra Soluble

*Increased uptake of nitrogen and enhanced efficiency*

Evolution xtra Soluble is specially formulated to protect against all three forms of nitrogen loss - leaching, denitrification and volatilisation- this allows time for nitrogen (N) to move into the rootzone and stay there longer, enabling an increased uptake of nutrients and enhanced efficiency.

The dual-inhibitor technology within UFLEXX® stabilised nitrogen is easily incorporated into existing fertiliser programmes. Inhibitors within UFLEXX®, slow the conversion of nutrients by physical and chemical effects or by the action of microorganisms. Nitrogen therefore slowly breaks down in the soil to become available to the turf.



## Key benefits

- Efficient use of nitrogen
- Lasts up to 3 months
- Chloride free
- Low scorch potential
- Reduced environmental impact
- Widely tank-mixable

46-0-0  
Soluble

Total nitrogen (N)	46%
Ureic nitrogen (N)	46%

Longevity	Application rate	Water volume	Pack size	Pack coverage	Packs/ha
8-12 weeks	20-40kg/ha	300-600l/ha	20 kg	10,000-5,000m <sup>2</sup>	1-2

Evolution xtra 46-0-0 Soluble	J	F	M	A	M	J	J	A	S	O	N	D
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# Redox

Agrovista Amenity can supply the unique turf and plant nutrition solutions offered in the Redox range, which have earned the trust of some of the world's most respected turf professionals.

Redox prides itself on being a plant technology company that incorporates innovative and proprietary technology that allow the plant to grow beyond current health and performance. Three technologies that Redox incorporates are chelation, complexing, and micro encapsulation.

## Product ranges include

- TurfRx C-85
- TurfRx Fairway+
- TurfRx NatureCur
- TurfRx K+ Micro Crystal
- TurfRx Supreme

## Key benefits

- Abiotic stress defence
- Soil health
- Root development
- Optimal turf quality and performance
- Unique turf and plant nutrition solutions
- Plant and soil nutrition



**Aquatrols®**

For more information contact your local amenity representative or visit [www.agrovista.co.uk/amenity](http://www.agrovista.co.uk/amenity)

# How soil pH affects nutrient availability

Soil pH is a measure of the concentration of Hydrogen (H<sup>+</sup>) ions in solution. A low pH value indicates a high concentration of H<sup>+</sup> ions and consequently an acidic soil. With alkaline soils the reverse is true; a high pH value signifying a low concentration of H<sup>+</sup> ions. The pH scale is logarithmic (to the base 10) so that a change in pH from 7.0 to 6.0 reflects a 10 fold increase in acidity.

The availability of nutrients to plants is affected by the pH of the soil. Since all nutrients are either weakly positively charged (cations +ve) or negatively charged (anions -ve).

Cations	Anions
<ul style="list-style-type: none"><li>Potassium K<sup>+</sup></li><li>Fe<sup>3+</sup></li><li>Copper Cu<sup>2+</sup></li><li>Calcium Ca<sup>2+</sup></li><li>Sodium Na<sup>+</sup></li><li>Zinc Zn<sup>2+</sup></li><li>Magnesium Mg<sup>2+</sup></li><li>Manganese Mn<sup>2+</sup></li><li>Cobalt Co<sup>2+</sup></li></ul>	<ul style="list-style-type: none"><li>Nitrate NO<sub>3</sub><sup>-</sup></li><li>Borate BO<sub>3</sub><sup>-3</sup></li><li>Phosphate PO<sub>4</sub><sup>3-</sup></li><li>Molybdate MoO<sub>4</sub><sup>-2</sup></li><li>Chloride Cl<sup>-</sup></li><li>Iodate IO<sub>3</sub><sup>+</sup></li></ul>

Soil colloids (e.g. clays and humus) have a negative charge and attract positively charged cations. They are held or 'locked up' until replaced or released by other cations. In this way they become slowly available to plant roots or are leached through the soil profile.

Anions are not adsorbed by soil colloids (both have a negative charge) and so tend to remain in the soil solution.

This makes them readily available to the plant, but also prone to leaching. The exception is phosphorous which behaves chemically as an anion and is held quite strongly in the soil by cations eg. calcium, magnesium and iron.

Clay and humus provide the sites to adsorb cations, and 'Cation Exchange Capacity' (CEC) is the ability of a soil to hold cationic nutrients. Therefore, soils with higher organic matter or clay content will have a higher CEC than sands, for example. CEC can be determined by soil analysis.

Soil pH influences CEC because there is an order of preference in which nutrients are bound to soil colloids.



As soil acidity increases, the concentration of H<sup>+</sup> increases (and the soil pH decreases). The H<sup>+</sup> ions are attached to the colloids and displace other cations (e.g. Na<sup>+</sup> NH<sub>4</sub><sup>+</sup> K<sup>+</sup> Mg<sup>2+</sup>) from the colloids and into the soil solution. This therefore decreases the CEC of the soil. Inversely, when soils become more alkaline (pH increases), the amount of available cations in solution decreases because there are fewer H<sup>+</sup> ions to push them into the soil solution from the colloids (CEC increases).

A small proportion of soil particles (1-5%) have a positive charge, and similar to the CEC, the Anion Exchange Capacity (AEC) is a measurement of the positive charges in soils affecting the amount of negative charges which a soil can adsorb. Again there is an order of preference of adsorption.



AEC generally decreases when pH drops and increases when pH rises. In general, most micronutrients become less available as the pH increases (eg. manganese, copper, zinc and iron), with the exception of molybdenum and boron (above pH 9) which become more available. Very acidic soils can reduce the availability of potassium, magnesium, calcium and molybdenum. For example, at pH 8 the availability of manganese is reduced in comparison to pH 6.5.

# Liquid application technology index

Trojan sprayers	50-51
Knapsack sprayers	52-53



# Trojan sprayers

Trojan sprayers are a professional pedestrian sprayer range offering a wide variety of product application onto areas such as golf greens, bowls greens, cricket pitches, sports pitches and ornamental lawns.

Manufactured to the highest standards Trojan sprayers also offer a comprehensive range of spares available on a next working day service.



## Trojan SPR60

The Trojan SPR60 is a three wheel, professional quality pedestrian sprayer.

It has a 60 litre capacity spray tank that fills the gap between the small pedestrian sprayers and the larger tractor mounted units.

### Specification

- 60 litre polythene tank (removable)
- 2 metre, 4 nozzle, removable front folding boom
- Heavy duty battery
- High output pump (14 litre per minute)
- Triple nozzle bodies (Quickfit)
- 3 wheels with pneumatic tyres
- Liquid agitation or spray valve
- Height adjustable handle



## Trojan SPR30

The Trojan SPR30 is a two wheel, 30 litre capacity professional quality pedestrian sprayer.

The boom can be moved into an upright position for storage and transportation purposes. The quick fit nozzles are a great time saver, they are easily changed, just twist the unit until the desired nozzle is selected.

### Specification

- 30 litre polythene tank (removable)
- 2 metre, 4 nozzle, removable front folding boom
- Quick release coupling for hand lance
- Heavy duty 12 volt battery
- High output pump (14 litre per minute)
- Triple nozzle bodies (Quickfit)
- 2 wheels with pneumatic tyres
- Liquid agitation or spray valve
- Operator can keep the solution in agitation between filling and spraying



## Trojan Cub

Based on the Trojan SPR30, the Cub is a professional two wheel sprayer.

An ideal choice for those on a budget but still looking for an easy-to-use, well built, reliable spraying machine.

### Specification

- Removable 30 litre polythene tank
- 2 metre width, with 4 sets of single nozzles
- Removable and height adjustable
- Single nozzles - Quickfit with check valves
- 12 amps per hour battery with integral charging point
- 12v diaphragm pump - 8 litres per minute
- Filtration, preset regulator, main on/off switch



**The best sprayer I have ever used on bowls greens applying both my nutritional and plant protection products**

Kevin Brazier  
Bowls Contractor - Hertfordshire

# Knapsack sprayers

Agrovista Amenity offers a range of knapsack sprayers suitable for professional or domestic use. Our range includes Cooper Pegler, Berthoud, Osatu and Micron knapsacks.

Manufactured to the highest standards and offering a comprehensive range of spares available on a next working day service.



## CP3 Evolution

The **CP3 Evolution** knapsack sprayer is robust and lightweight with a new, larger 20 litre capacity.

It is equipped with a new safety harness with an adjustable waist strap and reinforced back resulting in a significant reduction in discomfort for the user.

### Key features

- Improved comfort due to its two carrying handles
- Its unique diaphragm pump system ensures the longevity of the sprayer, as well as an adequate and precise protection for your crops
- Its built-in pressure relief valve guarantees precision



## CP15 Evolution

The CP15 Classic 15 litre knapsack sprayer has been developed to create the **CP15 Evolution** 15 litre knapsack sprayer.

As the name suggests, it has evolved to be more user-friendly, and is now equipped with an ergonomic carrying system with comfortable shoulder straps and waist belt to enable you to work better for longer.

### Key features

- Ergonomic carrying system
- Ultra-comfortable shoulder straps and waist belt resulting in a significant reduction in discomfort
- Two handles on the tank for easy handling
- Unique membrane pump system ensures a long life and maximum spraying convenience due to its flexible pumping



## Osatu Evolution Pro

**Osatu Evolution Professional 20 litre.** The Osatu Evolution Professional range offers strong durable knapsack sprayers, complete with a 5 year warranty.

An ideal choice for those on a budget but still looking for an easy-to-use, well built, reliable spraying machine.

### Key features

- 20 litre capacity strong lightweight spray tank
- Viton seal
- Wide base and large pouring mouth

# Key micronutrients to support plant health

## Boron

### Key functions in the plant

- Maintenance of cell membranes
- Structural component of cell walls
- Transport of nutrients and sugars through cell membranes
- Production of nucleic acids and cell division

## Iron

### Key functions in the plant

- Required for the synthesis of chlorophyll, 80% of iron content is in chloroplasts
- Involved in respiration (redox reaction)
- Constituent of cytochromes, and involved in utilisation of nitrate and sulphate
- Involved in lignin synthesis

## Sulphur

### Key functions in the plant

- Sulphur is an essential component of proteins in plants and animals, since it is required for the formation of two amino acids (cysteine and methionine) that are the building blocks of proteins
- Sulphur is also a component of enzymes (forming bonds within the enzyme structure) and vitamins
- Sulphur is also involved in the reduction of nitrate to amino acids

## Calcium

### Key functions in the plant

- Calcium pectate is a constituent of the cell walls
- Maintains strength and permeability of the cell membrane
- Involved in cell division and elongation, essential for healthy growth
- Disease/pest mitigation by strengthening cell walls
- Involved in nutrient uptake
- Activates a number of plant enzymes
- Involved in heat stress response by the formation of heat shock proteins and stomatal pore function

## Magnesium

### Key functions in the plant

- Central atom of chlorophyll molecule and is therefore essential for photosynthesis. However, typically this is only 15-20% of a plant's requirement for magnesium
- Deficiency of magnesium will reduce the plants photosynthetic rate
- Key activator of many enzyme reactions and protein synthesis
- Transport of carbohydrates and amino acids from the leaf to the roots and shoots via the phloem
- Important in nitrogen and phosphate metabolism
- Regulates uptake and cell turgor together with K<sup>+</sup>

## Zinc

### Key functions in the plant

- Important in synthesis of nucleic acid
- Required for many enzyme systems in the plant including photosynthesis (CO<sub>2</sub> assimilation), development of chloroplasts, sugar formation and protein synthesis
- Used in metabolism of the hormone auxin
- Low levels of zinc reduce disease resistance to Rhizoctonia spp.

## Copper

### Key functions in the plant

- Important component of several plant enzyme systems, including nitrate reductase, protein synthesis and hormone regulation
- Acts as a catalyst in photosynthesis and respiration
- Required for the manufacture of lignin in cell walls
- Copper, manganese and zinc, are all constituents of superoxide-dismutase (SOD enzyme) important in the detoxification of damaging free oxygen radicals that are formed under stress conditions

## Manganese

### Key functions in the plant

- Component of enzymes involved in photosynthesis, nitrate reduction, protein synthesis and other plant processes
- Required for chlorophyll synthesis
- Involved in production of vitamin C and carotene
- Manganese, zinc and copper are all constituents of superoxide-dismutase (SOD enzyme) important in the detoxification of damaging free oxygen radicals that are formed under stress conditions

# Micro-nutrients index

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# Bullet range

## Targeted nutrition for turf

The Bullet range of turf nutrition products has been specifically formulated to the highest standards. It is designed to place the turf manager in control of secondary macro and micronutrient application. Bullet range products can be used to overcome specific nutrient deficiencies, to augment plant functioning in response to environmental or pest induced stress, or to enhance the visual presentation of turf surfaces.



### Key benefits

- Helps plants to overcome specific nutrient deficiencies
- Improves plant responses to abiotic and biotic stress
- Improves visual appearance of turf surfaces

### Technical

The Bullet range can be used to elicit a specific plant stimulating effect or overcome soil nutritional deficiencies via foliar application. The formulations feature natural carboxylic acid chelating technology to ensure efficient and safe delivery of nutrients into the plant. Chelating agents encapsulate nutrients, helping them to be absorbed into the plant more effectively and efficiently. Natural carboxylic acid is degradable and will therefore not persist in the environment once the nutrient has been delivered into the plant.

- Foliar applied secondary macro and micronutrients
- Features carboxylic chelating agents to improve nutrient use
- Certain products stimulate plant defence mechanisms
- Uses natural biodegradable carboxylic acid chelating agents

Elicit a specific plant stimulating effect or overcome soil nutritional deficiencies

	Bullet Calcium	Bullet Calcium phosphite	Bullet Chelated Iron	Bullet Liquid Iron	Bullet Magnesium
Total nitrogen (N)	3.3%	-	2.5%	-	2.2%
Nitric nitrogen (N)	3.3%	-	-	-	2.2%
Ammoniacal nitrogen (N)	-	-	2.5%	-	-
Phosphorus pentoxide (P <sub>2</sub> O <sub>5</sub> ) Soluble in neutral ammonium citrate and water	-	25.0%	-	-	-
Phosphite (PO <sub>3</sub> )	-	-	-	-	-
Potassium oxide (K <sub>2</sub> O) Soluble in water	-	-	-	-	-
Magnesium oxide (MgO)	-	-	-	-	5.0%
Calcium oxide (CaO)	11.2%	19.0%	-	-	-
Sulphur trioxide (SO <sub>3</sub> )	-	-	13.6%	17.4%	-
Boron (B)	2.7%	-	-	-	-
Copper (Cu)	-	-	-	-	-
Iron (Fe)	-	-	7.5%	6.1%	-
Manganese (Mn)	-	-	-	0.3%	-
Molybdenum (Mo)	-	-	-	-	-
Zinc (Zn)	-	-	-	-	-
Silicon (Si)	-	-	-	-	-
pH	5-6	7.5-7.8	7.5-8.5	1-3	3.5-4.5

	Bullet Manganese	Bullet Phosphite	Bullet Potassium Silicate	Bullet Recharge	Bullet TE Complete
Total nitrogen (N)	-	-	-	-	3.3%
Nitric nitrogen (N)	-	-	-	-	-
Ammoniacal nitrogen (N)	-	-	-	-	3.3%
Phosphorus pentoxide (P <sub>2</sub> O <sub>5</sub> ) Soluble in neutral ammonium citrate and water	-	33.1%	-	-	-
Phosphite (PO <sub>3</sub> )	-	37.0%	-	-	-
Potassium oxide (K <sub>2</sub> O) Soluble in water	-	20.3%	33.6%	-	-
Magnesium oxide (MgO)	-	-	-	-	-
Calcium oxide (CaO)	-	-	-	-	-
Sulphur trioxide (SO <sub>3</sub> )	9.2%	-	-	15.2%	11.8%
Boron (B)	-	-	-	-	0.7%
Copper (Cu)	-	-	-	1.9%	0.5%
Iron (Fe)	-	-	-	-	3.5%
Manganese (Mn)	17.3%	-	-	4.4%	2.7%
Molybdenum (Mo)	-	-	-	-	0.3%
Zinc (Zn)	-	-	-	4.1%	0.8%
Silicon (Si)	-	-	49.0%	-	-
pH	3.9	3-5	>10	3.5-4	5-7

# Bullet Lawn Sand

Support consistent growth and colour response

Bullet Lawn Sand and Bullet Lawn Sand Extra can be used on all sports and amenity turf surfaces, including formal lawns and utility lawns. Both products can be used to support consistent growth and colour response throughout the growing season and will assist grass plants in outcompeting weeds and moss.



## Key benefits

- Can be used on all turf surfaces
- Supports consistent growth
- Improves turf colour
- Assists plants in outcompeting weeds and moss

	Bullet Lawn Sand	Bullet Lawn Sand Extra
Total nitrogen (N)	3.0%	3.0%
Ammoniacal nitrogen (N)	3.0%	3.0%
Magnesium oxide (MgO)	1.0%	-
Sulphur trioxide (SO <sub>3</sub> )	13.3%	19.3%
Iron (Fe)	3.0%	7.0%

Product	Longevity	Cutting height	Application rate	Bag coverage	Bags/ha
Lawn Sand	4-6 weeks	All turf	35-105g/m <sup>2</sup>	571-200m <sup>2</sup>	18-50
Lawn Sand Extra	4-6 weeks	All turf	25-50g/m <sup>2</sup>	1000-500m <sup>2</sup>	10-20

Lawn Sand	J	F	M	A	M	J	J	A	S	O	N	D
Lawn Sand Extra	J	F	M	A	M	J	J	A	S	O	N	D

	Calcium				Calcium phosphite				Chelated iron					Liquid iron					
Nutrient input (kg/ha)	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	CaO	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	CaO	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	SO <sub>3</sub>	Fe	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	SO <sub>3</sub>	Fe	
2.5 l/ha	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
5l/ha	n/a	n/a	n/a	n/a	-	-	1	1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10l/ha	-	-	-	1	-	-	3	2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20l/ha	1	-	-	2	n/a	n/a	n/a	n/a	1	-	-	3	2	n/a	n/a	n/a	n/a	n/a	n/a
30l/ha	1	-	-	3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	5	2	
50l/ha	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	9	3	

Nutrient input (kg/ha)	Magnesium				Manganese					Phosphite			Potassium silicate			
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	CaO	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	SO <sub>3</sub>	Mn	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Si
2.5 l/ha	n/a	n/a	n/a	n/a	-	-	-	0.2	0.4	n/a	n/a	n/a	-	-	1	1
5l/ha	-	-	-	0.3	-	-	-	0.5	1	-	2	1	-	-	2	2
10l/ha	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-	3	2	n/a	n/a	n/a	n/a
20l/ha	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30l/ha	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
50l/ha	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Nutrient input (kg/ha)	Recharge							Trace Element Complete									
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	SO <sub>3</sub>	Cu	Mn	Zn	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	SO <sub>3</sub>	B	Cu	Fe	Mn	Mo	Zn
2.5 l/ha	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.08	-	-	0.3	0.02	0.01	0.09	0.07	0.01	0.02
5l/ha	-	-	-	0.8	0.1	0.2	0.2	0.17	-	-	0.59	0.04	0.03	0.18	0.14	0.02	0.04
10l/ha	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20l/ha	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30l/ha	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
50l/ha	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Product	Longevity	Application rate	Water volume	Pack size	Pack coverage	Packs/ha
Calcium	4-6 weeks	10-20l/ha	300-500l/ha	5l	5,000-2,500m <sup>2</sup>	2-4
Calcium phosphite		5-10l/ha	220-600l/ha	5l	10,000-5,000m <sup>2</sup>	1-2
Chelated iron		20l/ha	200-400l/ha	5l	2,500m <sup>2</sup>	4
				10l	5,000m <sup>2</sup>	2
Liquid iron		30-100l/ha	400-600l/ha	20l	6,666-2,000m <sup>2</sup>	1.5-5
Magnesium		5l/ha	200l/ha	5l	10,000m <sup>2</sup>	1
Manganese		2.5-5l/ha	200l/ha	5l	20,000-10,000m <sup>2</sup>	0.5-1
Phosphite		5-10l/ha	200-400l/ha	5l	10,000-5,000m <sup>2</sup>	1-2
				10l	20,000-10,000m <sup>2</sup>	0.5-1
Potassium silicate		2.5-5l/ha	200l/ha	5l	20,000-10,000m <sup>2</sup>	0.5-1
Recharge		5l/ha	200-400l/ha	5l	10,000m <sup>2</sup>	1
Trace Element Complete		2.5-5l/ha	200l/ha	5l	20,000-10,000m <sup>2</sup>	0.5-1

Application period	J	F	M	A	M	J	J	A	S	O	N	D
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# GoGreen Granules

Provides a steady greening and hardening effect

GoGreen Granules contain a slow release form of iron that provides a steady greening and hardening effect over a four month period. A useful amount of potassium (10%) hardens the grass by strengthening cell walls and augments a trace of naturally occurring nitrogen. The slow release iron (8.7%) improves the health and appearance of turf without the blackening caused by some iron treatments. With an analysis of 2-0-10 +8.7Fe the product will easily fit into most turf nutritional programmes and can be applied at most times throughout the year. It is also especially useful as a spring start fertiliser where low nitrogen input is required. GoGreen Granules can be used on all fine turf areas as well as tees, sports pitches, outfield turf and ornamental lawns.



## Key benefits

- Winter green-up
- Iron chlorosis control
- Slow release iron
- Effective on fine turf

GoGreen Granules		Nutrient input (kg/ha)		
Total nitrogen (N)	2.0%	N	P	K
Ammoniacal nitrogen (N)	2.0%	8	-	40
Potassium oxide (K <sub>2</sub> O) Soluble in water	10.0%			
Iron (Fe)	8.7%			

Longevity	Granule size	Cutting height	Application rate	Bag coverage	Bags/ha
3-4 months	1-2mm	All turf	40g/m <sup>2</sup>	500m <sup>2</sup>	20

GoGreen Granules	J	F	M	A	M	J	J	A	S	O	N	D
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# GoGreen Plus

Extended green-up, corrects iron deficiency and improves disease resistance

GoGreen Plus helps to regulate the release of iron over a four week period to give a sustained effect without the blackening that some irons can cause. The addition of potassium improves cell wall strength in the leaf and stem. This gives a hardening effect and improves resistance to cold temperatures.

The ability of iron to improve turf quality when *Microdochium* disease pressure is high has been recognised for many years. Through the results from independent trial work, Agrovista Amenity promote a range of tank mixes that both reduce the effects of Microdochium patch and improve turf quality.



## Key benefits

- Complexed iron
- Improves tolerance to cold
- Surfactant for increased uptake speed
- Rapid greening

GoGreen Plus		Nutrient input (kg/ha)		
Total nitrogen (N)	2.0%	N	P	K
Ammoniacal nitrogen (N)	2.0%	0.4	-	1.2
Potassium oxide (K <sub>2</sub> O) Soluble in water	6.0%	0.8	-	2.4
Magnesium oxide (MgO)	0.049%			
Sulphur trioxide (SO <sub>3</sub> )	9.1%			
Iron (Fe)	6.0%			
Zinc	0.0091%			
Copper	0.0048%			
Manganese	0.024%			
Boron	0.03%			
Molybdenum	0.0024%			



Longevity	Application rate	Water volume	Pack size	Pack coverage	Packs/ha
4 weeks	20-40l/ha	400-600l/ha	5l	2,500-1,250m <sup>2</sup>	4-8

GoGreen Plus	J	F	M	A	M	J	J	A	S	O	N	D
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# GoGreen Select

Non-staining, rapid greening complexed iron

GoGreen Select is a unique complexed iron sulphate that may be used as a stand-alone product for rapid greening of turf or more flexibly, as a tank-mix partner with fertiliser and herbicides.

GoGreen Select is stable and provides an expanded range of spraying options not normally associated with the use of iron. The greening effect after the application of iron is well recognised and the complexed formulation of GoGreen Select encourages rapid uptake by the grass allowing this process to take effect more quickly.



### Key benefits

- Urea N for low scorch potential
- Non-staining, rapid greening complexed iron
- Can be tank-mixed with selective herbicide
- Low pH
- Widely tank mixable

GoGreen Select		Nutrient input (kg/ha)		
Total nitrogen (N)	6.0%	N	P	K
Ureic nitrogen (N)	6.0%	20l/ha	1.2	- 0.4
Potassium oxide (K <sub>2</sub> O) Soluble in water	2.0%			
Iron (Fe)	5.0%			

Area of use	Application rate	Water volume	Pack size	Pack coverage	Packs/ha
Stand alone	20 l/ha	400-600/ha	10l	5,000m <sup>2</sup>	2
Selective herbicide mix	20 l/ha	200-1000/ha	10l	5,000m <sup>2</sup>	2

GoGreen Select	J	F	M	A	M	J	J	A	S	O	N	D
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The Agrovista Amenity Academy, which is free to sign-up to, is an online learning resource providing in-depth Knowledge courses on subjects such as turf disease, product application, turf pests, managing moss, frost, weeds, and thatch as well as courses for products sold by Agrovista Amenity.

The Product courses have been designed so that the individual can fully understand and get maximum benefits from the products they purchase. With Knowledge and Product courses being added on a regular basis, Academy students are guaranteed to have a wide variety to choose from.

Furthermore, many greenkeepers and course managers are benefitting from a CPD partnership with BIGGA, which enables BIGGA's members to embark on any course they choose without having to go through an employer. BIGGA allocates up to 4 points for all successfully completed courses and can vary depending on content and length.

Earn CPD points whilst you learn





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Use plant protection products safely.

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