



growth through innovation



Turf & Amenity  
Product Guide

## Contents

Fine Turf Fertilisers	4
Outfield Fertilisers	8
Slow Release Fertiliser	10
Controlled Release Fertiliser	12
Organic Fertiliser	16
Foliar Fertiliser	18
Liquid Fertiliser	23
Soluble Fertiliser	26
OneShot Concentrated Sachets	28
Biostimulants & Seaweeds	32
Iron Products	36
Wetting Agents	38
Colourants	44
Spraying Aids	46
Fungicides & Biocides	50
Accessories	51
Analysis and Testing	52
Indigrow Product Compatibility Chart	54
Indigrow Fertiliser Specifications	56
NPK Nutrient Input Guide	58
Index	59

Indigrow are proud to be members of:





# Welcome to Indigrow

Indigrow produces a comprehensive range of specialist nutritional products for professional sports turf, agriculture, horticulture and landscaping. We design, develop and manufacture major, secondary and micronutrient fertiliser formulations.

Indigrow has over 50 years of experience in fertiliser, wetting agent and irrigation products for the amenity sector. The current product range has been extensively developed and improved over time to suit the plant requirements on managed amenity turf. With our commitment to providing customers with state of the art solutions we are constantly upgrading and refining our products.

Our group of companies and distributors maintain our product coverage throughout Europe, the Middle and Far East. We have an extensive range of products and recommendations to suit all climatic conditions and grass species.

In addition to the product range that we supply we also offer custom manufacturing for specific requirements. Our manufacturing is carried out at a number of locations all of which are approved to ISO 9001:2000 or equivalent and this is backed up with modern distribution centres and logistics systems, used to handling and delivering quality products safely.

Customer service is a crucial part of the Indigrow package. We work for our customers with local suppliers and distributors to ensure that the product supplied can provide the exact formulations required for optimum performance, maximum aesthetic effect and guaranteed customer satisfaction.

We do have a full range of products available to view on our website, [www.indigrow.com](http://www.indigrow.com), but if you should require any further information then please feel free to contact us:



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Our fine turf fertilisers have been developed to promote healthy, strong turf. Comprising a number of different nutrients in a variety of formulations, and are highly effective on all soil types with differing base nutrient levels. The fertilisers have been designed to work throughout the year and across a wide range of climates.

Our fertilisers incorporate a number of environmental factors, helping them to promote sustainable turf. Seaweed is also added to several of the products within the Impact range, allowing them to utilise all of its many benefits to help encourage healthy and aesthetically pleasing turf.

The fine turf fertilisers in our range feature homogenous and consistent granulation, ensuring accuracy when spreading and preventing areas from ending up with too much or too little of any one nutrient.

As well as nitrogen, phosphorous and potassium (NPK), most of our fine turf fertilisers also contain some essential trace elements. These trace elements help maximise turf appearance and health, and can be supplemented by our fine turf trace element package, Impact Spectrum.



Product	Analysis	App. Rate	Longevity	Pack Coverage	Pack Size	Code
<b>Impact Accelerate 14-0-12</b>	14-0-12	20-40 g/m <sup>2</sup>	4-6 weeks	500-1,000 m <sup>2</sup>	20 kg	IG030204
<b>Impact Vitalize 16-5-16</b>	16-5-16	20-40 g/m <sup>2</sup>	4-6 weeks	500-1,000 m <sup>2</sup>	20 kg	IG030205
<b>Impact Summer Perk 14-0-4 + 6% Fe</b>	14-0-4 + 6% Fe	20-40 g/m <sup>2</sup>	6-12 weeks	500-1,000 m <sup>2</sup>	20 kg	IG030207
<b>Impact Emerge 10-20-10</b>	10-20-10	20-40 g/m <sup>2</sup>	8-12 weeks	500-1,000 m <sup>2</sup>	20 kg	IG030206
<b>Impact Perk 4-0-14 + 10% Fe</b>	4-0-14 + 10% Fe	20-40 g/m <sup>2</sup>	6-12 weeks	500-1,000 m <sup>2</sup>	20 kg	IG030304
<b>Fusion Granular Fe</b>	2-0-10 + 9% Fe	25-40 g/m <sup>2</sup>	12-18 weeks	375-600 m <sup>2</sup>	15 kg	IG050301
<b>Impact All Round 5-5-15</b>	5-5-15	20-40 g/m <sup>2</sup>	4-6 weeks	500-1,000 m <sup>2</sup>	20 kg	IG030302
<b>Impact High K 0-0-50</b>	0-0-50	10-20 g/m <sup>2</sup>	4-6 weeks	1,000-2,000 m <sup>2</sup>	20 kg	IG030306
<b>Impact Enhance +37% CaO</b>	37% CaO	35-100 g/m <sup>2</sup>	4-6 weeks	100-285 m <sup>2</sup>	20 kg	IG030308
<b>Impact Spectrum T/E</b>	15% Fe, 8% Mn 5% MgO, 1.5% Zn 0.5% Cu, 0.45% B	10-20 g/m <sup>2</sup>	8-12 weeks	1,000-2,000 m <sup>2</sup>	20 kg	IG030401

## Impact Accelerate 14-0-12

Accelerate 14-0-12 has been designed to provide recovery and early green up of greens, tees and fairways. It provides an acidifying effect and can be used on soils with high pH levels. Accelerate 14-0-12 contains added potassium for improved wear tolerance and greater disease resistance.

- ▶ Designed for use on greens, tees and fairways
- ▶ Micro-prill homogenous fertiliser
- ▶ Swiftly dispersing granule minimises mower pickup
- ▶ Helps limit disease during periods of high pathogen activity

<b>Product Code:</b>	<b>IG030204</b>
Approximate Longevity	4 - 6 weeks
SGN	100
Cutting Height	>2mm
Nitrogen Source	14.0% ammonium
Guaranteed Analysis	14-0-12
Pack Size	20 kg
Pack Coverage	500-1,000 m <sup>2</sup>

### Application Information

Application Rate	20-40 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

Nutrient levels applied (kg/ha) from one application					
20g/m <sup>2</sup>			40g/m <sup>2</sup>		
N 28.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 24.0	N 56.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 48.0

Suggested soil temperatures for application		
minimum °C	optimum °C	maximum °C
5	16	-

## Impact Vitalize 16-5-16

Vitalize 16-5-16 has been developed to have a NPK analysis that provides an acidifying response. Vitalize 16-5-16 has added magnesium to improve plant stress relief during the main growing season. The technological formulation also provides quick green up as well as slow release technology for added longevity.

- ▶ Good cool temperature response
- ▶ Improved plant stress control
- ▶ Added magnesium for improved stress relief
- ▶ Quick breakdown of granules with moisture

<b>Product Code:</b>	<b>IG030205</b>
Approximate Longevity	4 - 6 weeks
SGN	100
Cutting Height	>2mm
Nitrogen Source	11.4% urea, 4.6% ammonium
Trace Elements	2% MgO
Guaranteed Analysis	16-5-16
Pack Size	20 kg
Pack Coverage	500-1,000 m <sup>2</sup>

### Application Information

Application Rate	20-40 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

Nutrient levels applied (kg/ha) from one application					
20g/m <sup>2</sup>			40g/m <sup>2</sup>		
N 32.0	P <sub>2</sub> O <sub>5</sub> 10.0	K <sub>2</sub> O 32.0	N 64.0	P <sub>2</sub> O <sub>5</sub> 20.0	K <sub>2</sub> O 64.0

Suggested soil temperatures for application		
minimum °C	optimum °C	maximum °C
10	16	30

## Impact Summer Perk 14-0-4 + 6% Fe

In response to the popularity of Perk 4-0-14, we have formulated a Summer version utilising the same slow release iron humate source. Summer Perk 14-0-4 is an ideal late Spring and early Summer feed and is ideal for closely mown greens and tees.

- ▶ Contains two types of nitrogen and slow release iron
- ▶ Same micro-granulation as Impact Perk 4-0-14
- ▶ Contains two types of nitrogen
- ▶ Added slow release iron for added turf colour

<b>Product Code:</b>	<b>IG030207</b>
Approximate Longevity	6-12 weeks
SGN	100
Cutting Height	>2mm
Nitrogen Source	9.0% ammonium, 5.0% urea
Trace Elements	6.0% slow release iron
Guaranteed Analysis	14-0-4 + 6% Fe
Pack Size	20 kg
Pack Coverage	500-1,000 m <sup>2</sup>

### Application Information

Application Rate	20-40 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

Nutrient levels applied (kg/ha) from one application					
20g/m <sup>2</sup>			40g/m <sup>2</sup>		
N 28.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 8.0	N 56.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 16.0

Suggested soil temperatures for application		
minimum °C	optimum °C	maximum °C
10	16	30

## Impact Emerge 10-20-10

Emerge 10-20-10 has been designed to enhance germination and establishment of newly seeded or turfed areas. It displays good cool temperature response and contains calcium and seaweed to help seedling establishment and root growth.

- ▶ Contains fast acting and slow release nutrients
- ▶ Granules that break down quickly with moisture
- ▶ Can be applied directly to the seed bed or newly laid turf

<b>Product Code:</b>	<b>IG030206</b>
Approximate Longevity	8-10 weeks
SGN	100
Cutting Height	>2mm
Nitrogen Source	10% ammonium
Guaranteed Analysis	10-20-10
Pack Size	20 kg
Pack Coverage	500-1,000 m <sup>2</sup>

### Application Information

Application Rate	20-40 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

Nutrient levels applied (kg/ha) from one application					
20g/m <sup>2</sup>			40g/m <sup>2</sup>		
N 20.0	P <sub>2</sub> O <sub>5</sub> 40.0	K <sub>2</sub> O 20.0	N 40.0	P <sub>2</sub> O <sub>5</sub> 80.0	K <sub>2</sub> O 40.0

Suggested soil temperatures for application		
minimum °C	optimum °C	maximum °C
8	16	30



## Impact Perk 4-0-14 + 10% Fe

The 10% slow release iron source in Impact Perk provides long term colour without over stimulating top growth. The combination of manganese, iron and potassium make this an ideal autumn and winter turf hardening formulation but it has also been used as a pre-season fertiliser with great success.

- ▶ High potassium formulation with added manganese
- ▶ 10% phased release iron provides up to 12 weeks of green up
- ▶ Slow release iron derived from iron humate
- ▶ Ideal for sand based constructions
- ▶ A low salt index formulation

Product Code:	IG030304
Approximate Longevity	6-12 weeks
SGN	100
Cutting Height	>2mm
Nitrogen Source	2.0% ammonium, 2.0% urea
Trace Elements	10% slow release iron, 1% Mn
Guaranteed Analysis	4-0-14
Pack Size	20 kg
Pack Coverage	500-1,000 m <sup>2</sup>

### Application Information

Application Rate	20-40 g/m <sup>2</sup>				
Water Rate	N/A				
Method	Spreader				
Nutrient levels applied (kg/ha) from one application					
20g/m <sup>2</sup>			40g/m <sup>2</sup>		
N 8.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 28.0	N 16.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 56.0
Suggested soil temperatures for application					
minimum °C		optimum °C		maximum °C	
8		14		30	

## Fusion Granular Fe

The revised formulation of Fusion Granular Fe is a balanced nitrogen and potassium analysis with added iron. This long lasting formulation provides sustained green up without promoting excessive growth. Fusion Granular Fe will work effectively in lower temperatures and contains an added surfactant that helps with the rapid uptake of iron.

- ▶ Ideal tournament preparation product
- ▶ Provides very rapid green up
- ▶ Slow release of iron

Product Code:	IG050301
Approximate Longevity	12-18 weeks
Cutting Height	>2mm
Nitrogen Source	2.0% ammoniacal
Trace Elements	9.0% Fe
Guaranteed Analysis	2-0-10 + 9.0% Fe
Pack Size	15 kg
Pack Coverage	375-600 m <sup>2</sup>

### Application Information

Application Rate	25-40 g/m <sup>2</sup>				
Water Rate	N/A				
Method	Spreader				
Nutrient levels applied (kg/ha) from one application					
25 g/m <sup>2</sup>		40 g/m <sup>2</sup>			
N 5.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 25.0	N 8.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 40.0
Suggested soil temperatures for application					
minimum °C	optimum °C		maximum °C		
6	15		-		



## Impact All Round 5-5-15

All Round 5-5-15 is a well-balanced NPK fertiliser. Seaweed is added to the 5-5-15 during manufacture which provides added stress relieving properties to the plant during the growing season. Impact All Round 5-5-15 features homogenous 1mm granules which disappear into the sward quickly ensuring minimal disruption to activity on the turf.

- ▶ Improved nutrient uptake in cooler soil temperatures
- ▶ Immediately available source of nitrogen
- ▶ A low salt index formulation
- ▶ Added MgO & Fe for improved appearance without top growth
- ▶ Excellent Autumn/Winter turf hardener

**Product Code:** IG030302

Approximate Longevity	4-6 weeks
SGN	100
Cutting Height	>2mm
Nitrogen Source	5.0% ammonium
Trace Elements	3.0% MgO, 4.0% slow release Fe
Pack Size	20 kg
Pack Coverage	500-1,000 m <sup>2</sup>

### Application Information

Application Rate	20-40 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

Nutrient levels applied (kg/ha) from one application

20g/m <sup>2</sup>			40g/m <sup>2</sup>		
N 10.0	P <sub>2</sub> O <sub>5</sub> 10.0	K <sub>2</sub> O 30.0	N 20.0	P <sub>2</sub> O <sub>5</sub> 20.0	K <sub>2</sub> O 60.0

Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
8	14	25

## Impact High K 0-0-50

High K 0-0-50 has been developed to address turf areas with low potassium levels. It helps improve cell wall strength and chlorophyll production without the use of iron or nitrogen. It is designed for use on soils with highly mobile potassium which is susceptible to leaching. High K 0-0-50 should be applied regularly utilising low application rates for most effective performance.

- ▶ Usable in winter without stimulating unwanted growth
- ▶ Flexible application rates allow use within playing season
- ▶ Very soluble formulation
- ▶ Usable on sand greens where potassium is highly mobile

**Product Code:** IG030306

Approximate Longevity	4 - 6 weeks
SGN	100
Cutting Height	>2mm
Potassium Source	50.0% potassium sulphate
Guaranteed Analysis	0-0-50
Pack Size	20 kg
Pack Coverage	1,000-2,000 m <sup>2</sup>

### Application Information

Application Rate	10-20 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

Nutrient levels applied (kg/ha) from one application

10g/m <sup>2</sup>			20g/m <sup>2</sup>		
N 0.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 50.0	N 0.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 100.0

Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
12	16	25

## Impact Enhance 37% CaO

Impact Enhance is an effective method of adding calcium and sulphur to the plant, without altering the NPK balance. It can also be applied to counteract problem soil conditions. Impact Enhance is produced from calcium sulphate and its controlled particle size ensures optimum plant availability.

- ▶ Designed for calcium deficient soils
- ▶ Beneficial in leaching soluble salts from the root zone
- ▶ Breaks down rapidly with light irrigation

**Product Code:** IG030308

Approximate Longevity	4-6 weeks
SGN	100
Cutting Height	>2mm
Calcium Source	37.0% calcium sulphate
Guaranteed Analysis	0-0-0 + 37.0% CaO
Pack Size	20 kg
Pack Coverage	100-285 m <sup>2</sup>

### Application Information

Application Rate	35-100 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

Nutrient levels applied (kg/ha) from one application

35g/m <sup>2</sup>			100g/m <sup>2</sup>		
N 0.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 0.0	N 0.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 0.0

Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
8	16	30

## Impact Spectrum T/E

Impact Spectrum is a complete granular trace element package for fine turf. Spectrum has been developed to include a high concentration of micronutrients in a small granule. It should be used on turf areas where the availability of trace elements is minimal to help improve the all round look and performance.

- ▶ Fine turf granulation allowing flexible application rates
- ▶ Ideal for sand based rootzones with low CEC
- ▶ For use during construction or as a maintenance application
- ▶ Ideal for addressing deficiencies during the season

**Product Code:** IG030401

Approximate Longevity	8-12 weeks
SGN	100
Cutting Height	>2mm
Trace Elements	15% Fe, 8% Mn, 5% MgO 1.5% Zn, 0.5% Cu, 0.45% B
Pack Size	20 kg
Pack Coverage	1,000-2,000 m <sup>2</sup>

### Application Information

Application Rate	10-20 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
8	16	30

Indigrow's outfield fertilisers are not just conventional fertilisers, they also benefit from high levels of humic acid.

Humic acid has many functions in the soil both chemical and physical. Chemically it aids in the breakdown of toxins and directly reduces the plants uptake of toxins. It also directly encourages microbial growth of both flora and fauna, which add to general soil fertility and health. Humic acid has also been found to assist in seed germination and plant growth as well as improving resistance to fungal attack.

Our outfield fertilisers have a larger granule size than our fine turf fertilisers, making them ideal for use in areas where turf is not cut as short. Whilst they are larger, the granules are still homogenous, ensuring the accurate spread of nutrients.

In addition to our products in this section, our controlled release fertilisers (see page 12), are perfect for use in all outfield areas.



Product	Analysis	App. Rate	Longevity	Pack Coverage	Pack Size	Code
<b>Impact Humik N25</b>	25-0-0	20-40 g/m <sup>2</sup>	6-10 weeks	500-1,000 m <sup>2</sup>	20 kg	IG030610
<b>Impact Humik NPK 5-2-1</b>	5-2-1	20-40 g/m <sup>2</sup>	6-10 weeks	500-1,000 m <sup>2</sup>	20 kg	IG030612



## Before:

The stadium pitch at a Championship level football club after renovation, taken immediately before an application of Impact Humik 25.



## After:

The same pitch 48 hours after an application of Impact Humik N25 at 35g/m<sup>2</sup>, highlighting the initial results achieved.

### Impact Humik N25

Humik 25 is a new technology slow release outfield fertiliser. Humik 25 is a complex of humates and nitrogen which can only be broken down through microbial activity. Using Impact Humik 25 will provide all the benefits of slow release nitrogen, including; sustained growth, fewer growth flushes and less nitrate leaching. It will also provide the added benefits of humates through soil building and an increase in C.E.C.

- ▶ Suitable for use on fairways and outfields
- ▶ High nitrogen content with no phosphorous or potassium input
- ▶ Includes both urea and ammoniacal nitrogen

Product Code:	IG030610
Approximate Longevity	6-10 weeks
SGN	150-250
Cutting Height	>10mm
Nitrogen Source	9.0% urea, 15.7% ammoniacal, 0.3% nitrate
Pack Size	20 kg
Pack Coverage	500-1,000 m <sup>2</sup>

#### Application Information

Application Rate	20-40 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

#### Nutrient levels applied (kg/ha) from one application

20g/m <sup>2</sup>			40g/m <sup>2</sup>		
N 50.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 0.0	N 100.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 0.0

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
12	18	30

### Impact Humik NPK 5-2-1

Impact Humik NPK is derived from soybean extract and contains more than 70% organic matter. It's 5-2-1 analysis with humic acid and trace elements makes this an ideal product to feed fairways and outfields without encouraging excessive growth. The humic and amino acids, along with the trace elements help to promote all round plant health.

- ▶ For use on fairways and outfields
- ▶ A balanced NPK analysis
- ▶ Contains five trace elements
- ▶ Includes naturally occurring amino and humic acids (+25%)

Product Code:	IG030601
Approximate Longevity	6-10 weeks
SGN	150-250
Cutting Height	>10mm
Nitrogen Source	3.1% ammonia, 0.5% urea, 2.0% organic
Trace Elements	CaO, MgO, Cu, Zn and Mn
Guaranteed Analysis	5-2-1
Pack Size	20 kg
Pack Coverage	500-1,000 m <sup>2</sup>

#### Application Information

Application Rate	20-40 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

#### Nutrient levels applied (kg/ha) from one application

20g/m <sup>2</sup>			40g/m <sup>2</sup>		
N 10.0	P <sub>2</sub> O <sub>5</sub> 4.0	K <sub>2</sub> O 2.0	N 20.0	P <sub>2</sub> O <sub>5</sub> 8.0	K <sub>2</sub> O 4.0

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
12	18	30

Slow release fertilisers (SRF) have the ability to provide nutrients to the plant when most needed. These fertilisers take care of the changing needs of the plant and support the seasonal growth process. The nitrogen in the slow release fertilisers is either released by hydrolysis or by microbial activity in the soil. There is far less leaching, meaning fewer applications - a major benefit to the greenkeeper or groundsman - as well as the obvious environmental benefits.

There are a mixture of chain lengths in our SRF methylene urea granular fertilisers. These different chain lengths provide different nitrogen release times to ensure the plant always has the required nitrogen input. The urea releases first, providing initial green up. Mono-methylene urea releases second and methylene diurea third. The final release phase is polymethylene urea. These four stages release the nitrogen regularly over 8-12 weeks.



Product	Analysis	App. Rate	Longevity	Pack Coverage	Pack Size	Code
<b>Impact SRF 19-5-19 + 2% Fe</b>	19-5-19 + 2% Fe	20-40 g/m <sup>2</sup>	8-12 weeks	500-1,000 m <sup>2</sup>	20 kg	IG030514
<b>Impact SRF 12-0-24</b>	12-0-24	20-40 g/m <sup>2</sup>	8-12 weeks	500-1,000 m <sup>2</sup>	20 kg	IG030516



## Impact SRF 19-5-19 + 2% Fe

SRF 19-5-19 is an homogenous fertiliser containing slow release nitrogen. The added methylene urea provides a slow and gradual nutrient release, whilst minimising the risk of nitrate leaching and runoff. The SRF 19-5-19 provides equal amounts of nitrogen and potassium and can help to stimulate root growth.

- ▶ For use on greens and tees
- ▶ Improves drought tolerance and disease resistance
- ▶ Low salt content reduces potential for phytotoxicity
- ▶ Improves wear tolerance

Product Code:	IG050215
Approximate Longevity	8-12 weeks
SGN	100
Cutting Height	>2mm
Nitrogen Source	5.2% urea, 13.8% MU
Trace Elements	2.0% Fe
Guaranteed Analysis	19-5-19 + 2% Fe
Pack Size	20 kg
Pack Coverage	500-1,000 m <sup>2</sup>

### Application Information

Application Rate	20-40 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

#### Nutrient levels applied (kg/ha) from one application

20g/m <sup>2</sup>			40g/m <sup>2</sup>		
N 38.0	P <sub>2</sub> O <sub>5</sub> 10.0	K <sub>2</sub> O 38.0	N 76.0	P <sub>2</sub> O <sub>5</sub> 20.0	K <sub>2</sub> O 76.0

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
15	25	35

## Impact SRF 12-0-24

SRF 12-0-24 is a homogenous, phosphate free, slow release fertiliser. The methylene urea N source provides a gradual and consistent nutrient release for up to 16 weeks and reduces the risk of nitrate leaching, scorch and runoff. The fast release urea nitrogen provides efficient potassium uptake.

- ▶ Designed for use on greens and tees
- ▶ Phosphorous free
- ▶ Low salt content reduces potential for phytotoxicity
- ▶ High potassium levels provide improved drought tolerance

Product Code:	IG030516
Approximate Longevity	8-12 weeks
SGN	100
Cutting Height	>2mm
Nitrogen Source	2.0% urea, 9.0% MU, 1.0% ammonium
Trace Elements	See page 56
Guaranteed Analysis	12-0-24
Pack Size	20 kg
Pack Coverage	500-1,000 m <sup>2</sup>

### Application Information

Application Rate	20-40 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

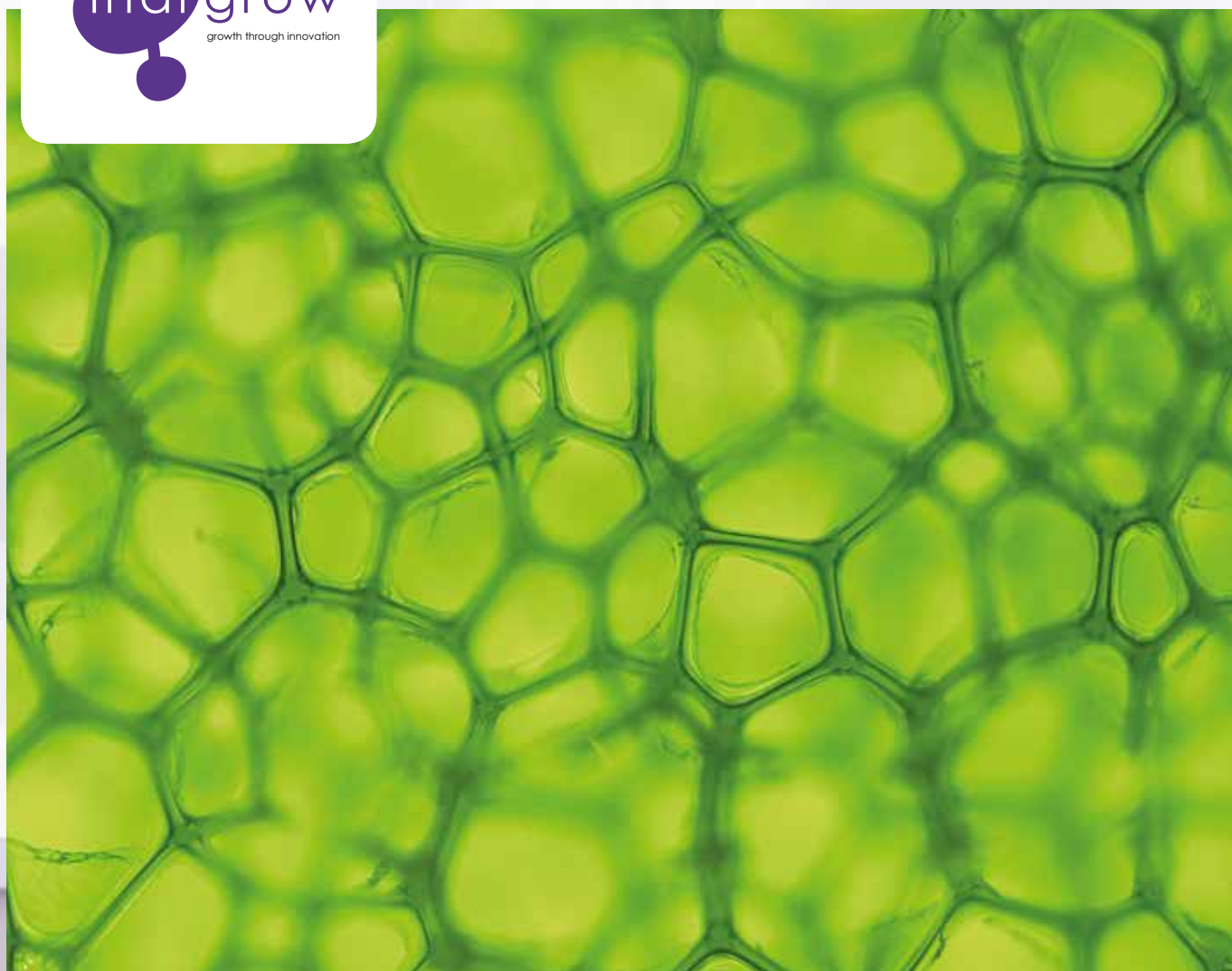
#### Nutrient levels applied (kg/ha) from one application

20g/m <sup>2</sup>			40g/m <sup>2</sup>		
N 24.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 48.0	N 48.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 96.0

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
13	20	35





Our controlled release fertilisers (CGF) are all based on PSCU (polymer sulphur coated urea). PSCU fertilisers use a release mechanism based on moisture, giving longevities of up to 24 weeks, based on the level of the coating.

The five products in our range utilise different coating levels, to provide a release range of between 8 and 24 weeks, ensuring there is a product to suit all scenarios.

Our controlled release fertilisers are produced with a consistent granule size (140SGN), which ensures they are suitable for use on almost all turf areas. We have had particular success with the use of these products on golf tees, and well as fairways, outfields and sports fields.

Product	Analysis	App. Rate	Longevity	Pack Coverage	Pack Size	Code
<b>Impact CGF 15-5-15</b>	15-5-15	20-40 g/m <sup>2</sup>	8-10 weeks	500-1,000 m <sup>2</sup>	20 kg	IG030808
<b>Impact CGF 25-5-10</b>	25-5-10	20-40 g/m <sup>2</sup>	8-12 weeks	500-1,000 m <sup>2</sup>	20 kg	IG030810
<b>Impact CGF 16-5-26</b>	16-5-26	20-40 g/m <sup>2</sup>	8-12 weeks	500-1,000 m <sup>2</sup>	20 kg	IG030812
<b>Impact CGF 26-5-8</b>	26-5-8	20-40 g/m <sup>2</sup>	10-12 weeks	500-1,000 m <sup>2</sup>	20 kg	IG030814
<b>Impact CGF 28-8-8</b>	28-8-8	20-40 g/m <sup>2</sup>	18-24 weeks	500-1,000 m <sup>2</sup>	20 kg	IG030821

## Impact CGF 15-5-15 (20% PolyC)

Impact CGF 15-5-15 is suitable for fairways and outfields and is an ideal spring/summer product. The high levels of uncoated nitrogen provide the turf with good green up and an initial growth response. Impact CGF 15-5-15 is a very economic approach to feeding large areas and the added PSCU provides increased longevity.

- ▶ Suitable for use on tees, fairways, outfields and sports fields
- ▶ Moisture activated controlled release nitrogen
- ▶ Balanced N-K analysis
- ▶ Economic controlled release fertiliser

Product Code:	IG030808
Approximate Longevity	8-10 weeks
SGN	140
Cutting Height	>6mm
Nitrogen Source	3.0% PolyC, 8.7% urea 3.3% ammonium
Trace Elements	12.6% CaO, 12.4% SO <sub>3</sub>
Guaranteed Analysis	15-5-15
Pack Size	20 kg
Pack Coverage	500-1,000m <sup>2</sup>

### Application Information

Application Rate	20-40 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

Nutrient levels applied (kg/ha) from one application

20g/m <sup>2</sup>			40g/m <sup>2</sup>		
N 30.0	P <sub>2</sub> O <sub>5</sub> 10.0	K <sub>2</sub> O 30.0	N 60.0	P <sub>2</sub> O <sub>5</sub> 20.0	K <sub>2</sub> O 60.0

Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
10	16	30

## Impact CGF 25-5-10 (40% PolyC)

Impact Outfield CGF 25-5-10 provides excellent nutrient availability in cool temperatures. The unique formulation process ensures free release of ammoniacal and ureic nitrogen immediately after application, providing an initial effect on growth. The added 2% MgO provides excellent green up, and the PSCU coating ensures very low nitrogen leaching.

- ▶ Ideal spring starter for outfields
- ▶ Moisture activated controlled released nitrogen
- ▶ Prevents scorch
- ▶ Ideal for use on tees, fairways, sports fields and non-fine turf

Product Code:	IG030810
Approximate Longevity	8-12 weeks
SGN	140
Cutting Height	>6mm
Nitrogen Source	10.4% PolyC, 13.4% urea, 1.2% ammonium
Trace Elements	2% MgO
Guaranteed Analysis	25-5-10
Pack Size	20 kg
Pack Coverage	500-1,000m <sup>2</sup>

### Application Information

Application Rate	20-40 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

Nutrient levels applied (kg/ha) from one application

20g/m <sup>2</sup>			40g/m <sup>2</sup>		
N 50.0	P <sub>2</sub> O <sub>5</sub> 10.0	K <sub>2</sub> O 40.0	N 100.0	P <sub>2</sub> O <sub>5</sub> 20.0	K <sub>2</sub> O 80.0

Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
10	18	30



The nitrogen in our CGF range is coated with sulphur and wrapped in a biodegradable, polymer membrane.

The nitrogen is released when moisture penetrates the outer membrane. The thicker the coating, the longer the release period. This process is unaffected by temperature.



## Impact CGF 16-5-26 (40% PolyC)

Impact Outfield CGF 16-5-26 is an ideal feed for outfields, providing an excellent response even in cooler temperatures. The unique formulation process ensures early release of ammoniacal and ureic nitrogen, providing an initial growth effect. This, combined with the added 2% MgO, delivers excellent plant green up.

- ▶ Controlled release nitrogen, activated by moisture
- ▶ Prevents scorch
- ▶ High potassium levels provide added winter colour
- ▶ Ideal for application to tees, fairways, sports fields

<b>Product Code:</b>	<b>IG030812</b>
Approximate Longevity	8-12 weeks
SGN	140
Cutting Height	>6mm
Nitrogen Source	6.4% PolyC, 8.3% urea, 1.3% ammonium
Trace Elements	2% MgO
Guaranteed Analysis	16-5-26
Pack Size	20 kg
Pack Coverage	500-1,000m <sup>2</sup>

### Application Information

Application Rate	20-40 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

#### Nutrient levels applied (kg/ha) from one application

20g/m <sup>2</sup>			40g/m <sup>2</sup>		
N 32.0	P <sub>2</sub> O <sub>5</sub> 10.0	K <sub>2</sub> O 52.0	N 64.0	P <sub>2</sub> O <sub>5</sub> 20.0	K <sub>2</sub> O 104.0

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
10	18	30

## Impact CGF 26-5-8 (60% PolyC)

Impact Outfield CGF 26-5-8 is a balanced summer feed that provides steady growth response. The free release of ammoniacal and ureic nitrogen provides an initial growth effect. The two step manufacturing process ensures a far more predictable nutrient release pattern in comparison to other blended PSCU products available.

- ▶ Moisture activated controlled release nitrogen
- ▶ Prevents scorch
- ▶ Provides plant 'green-up' from additional 2% MgO
- ▶ Suitable for use on tees, fairways, outfields and sports fields

<b>Product Code:</b>	<b>IG030814</b>
Approximate Longevity	10-12 weeks
SGN	140
Cutting Height	>6mm
Nitrogen Source	15.6% PolyC, 9.2% urea, 1.2% ammonium
Trace Elements	2% MgO
Guaranteed Analysis	26-5-8
Pack Size	20 kg
Pack Coverage	500-1,000m <sup>2</sup>

### Application Information

Application Rate	20-40 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

#### Nutrient levels applied (kg/ha) from one application

20g/m <sup>2</sup>			40g/m <sup>2</sup>		
N 52.0	P <sub>2</sub> O <sub>5</sub> 10.0	K <sub>2</sub> O 16.0	N 104.0	P <sub>2</sub> O <sub>5</sub> 20.0	K <sub>2</sub> O 32.0

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
12	18	30



## Impact CGF 28-8-8 (93% PolyC)

Outfield 28-8-8 contains controlled release nitrogen from 93% PolyC coating. Outfield 28-8-8 is controlled release in its nature, making it more environmentally friendly than standard release fertilisers. The controlled release nature is in keeping with the basic principles of sustainable turf. The 140SGN granule size allows for flexible application rates.

- ▶ Spring/Summer long term feed, ideal for steady healthy growth over 5-6 months
- ▶ Helps prevent scorch & will not produce excessive growth
- ▶ Ideal for use on fairways, tees and greens surrounds

Product Code: IG030821

Approximate Longevity	18-24 weeks
SGN	140
Cutting Height	>6mm
Nitrogen Source	26.1% PolyC, 1.9% ammonium
Guaranteed Analysis	28-8-8
Pack Size	20 kg
Pack Coverage	500-1,000m <sup>2</sup>

### Application Information

Application Rate	20-40 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

Nutrient levels applied (kg/ha) from one application

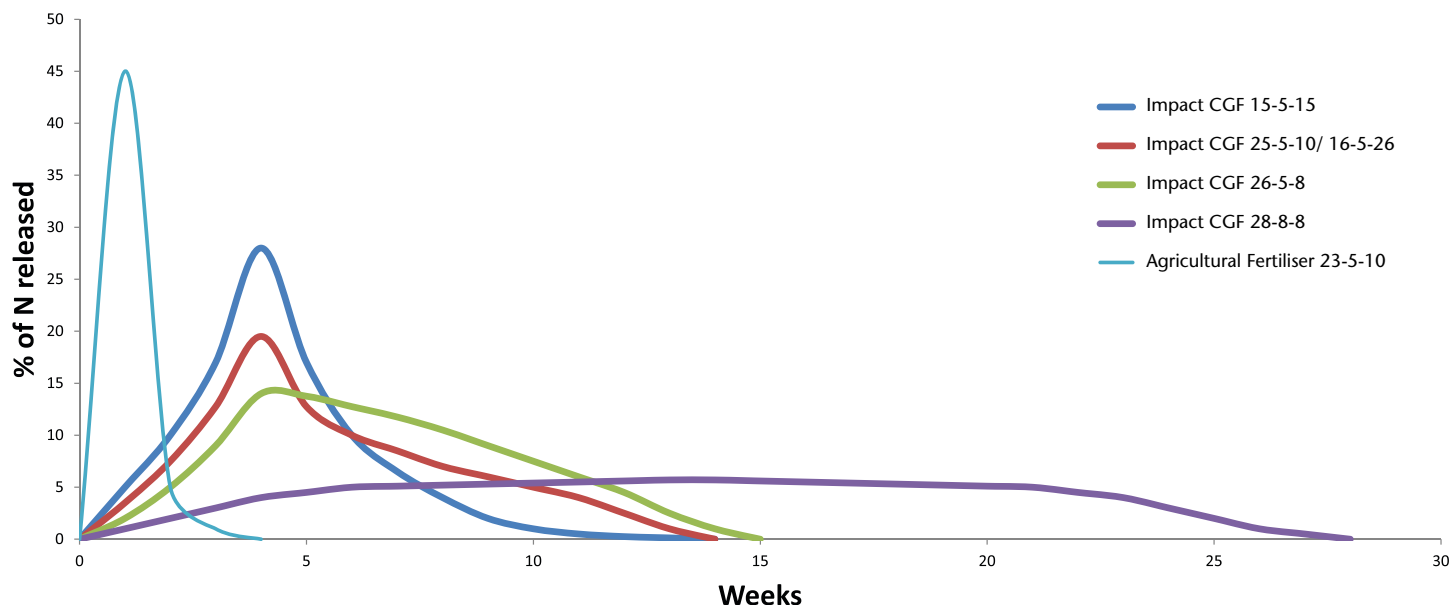
20g/m <sup>2</sup>			40g/m <sup>2</sup>		
N 56.0	P <sub>2</sub> O <sub>5</sub> 16.0	K <sub>2</sub> O 16.0	N 112.0	P <sub>2</sub> O <sub>5</sub> 32.0	K <sub>2</sub> O 32.0

Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
12	18	30



## How Controlled Release Fertilisers Release Nitrogen Over Time



Organic fertilisers have become increasingly popular and far more effective in recent years. Indigrow's organic fertilisers are loaded with natural, plant based proteins. Our Impact Organic range is solely based on vegetable material and does not contain any genetically modified products.

Our organic products are now predominantly produced from soybean meal, which is high in protein and an excellent choice for improved overall plant health and increased growth.

Natural proteins are slow release in their nature. They are first broken down into amino acids by microbial activity. These amino acids are then broken down further to ammonium ions and, ultimately, nitrate ions. Swards that thrive in acidic soil react well to nitrogen provided as ammonium ions. It is this form of nitrogen which helps these proteins develop.

Impact Organic fertilisers contain seaweed meal which adds valuable micronutrients, growth hormones, and vitamins which help disease tolerance, reduce plant stress from drought, and increase frost tolerance.

The Impact Organic range contains formulations suitable for fine turf, as well as for fairways and outfields. These formulations contain a balance of quick release nitrogen, phosphate and potassium (NPK) for an initial response from the plant. This initial release is followed by further response from the methylene urea and a sustained release from the plant proteins.



Product	Analysis	App. Rate	Longevity	Pack Coverage	Pack Size	Code
<b>Impact Organic 14-2-8 Fine</b>	14-2-8	35-70 g/m <sup>2</sup>	8-12 weeks	300-600 m <sup>2</sup>	20 kg	IG030901
<b>Impact Organic 14-2-8 Medium</b>	14-2-8	35-70 g/m <sup>2</sup>	8-12 weeks	300-600 m <sup>2</sup>	20 kg	IG030951





### Impact Organic 14-2-8 (Fine)

Organic 14-2-8 is a plant based organic homogenous fertiliser. The organic constituents help develop beneficial bacteria within the root-zone, whilst the methylene urea provides extended nitrogen release. Impact Organic 14-2-8 contains an organic, added mineral and slow release combination of N sources to improve the release pattern for predictable performance. Organic 14-2-8 also contains magnesium and iron for improved colour response.

- ▶ Fine grade for use on greens and tees
- ▶ High nitrogen spring and summer feed
- ▶ Methylene urea provides extended longevity
- ▶ Low salt index and minimal scorch

Product Code:	IG030901
Approximate Longevity	8-12 weeks
SGN	120
Cutting Height	>2mm
Nitrogen Source	2.6% organic, 6.0% urea 2.9% MU, 2.6% ammonium
Guaranteed Analysis	14-2-8
Pack Size	20 kg
Pack Coverage	300-600 m <sup>2</sup>

#### Application Information

Application Rate	35-70 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

Nutrient levels applied (kg/ha) from one application					
35g/m <sup>2</sup>			70g/m <sup>2</sup>		
N 49.0	P <sub>2</sub> O <sub>5</sub> 7.0	K <sub>2</sub> O 28.0	N 98.0	P <sub>2</sub> O <sub>5</sub> 14.0	K <sub>2</sub> O 56.0

Suggested soil temperatures for application		
minimum °C	optimum °C	maximum °C
10	18	30

### Impact Organic 14-2-8 (Medium)

Organic 14-2-8 is a plant based organic homogenous fertiliser. The organic constituents help develop beneficial bacteria within the root-zone, whilst the methylene urea provides extended nitrogen release. Impact Organic 14-2-8 contains an organic, added mineral and slow release combination of N sources to improve the release pattern for predictable performance. Organic 14-2-8 also contains magnesium and iron for improved colour response.

- ▶ Medium grade for use on tees, fairways and outfields
- ▶ High nitrogen spring and summer feed
- ▶ Methylene urea provides extended longevity
- ▶ Low salt index and minimal scorch

Product Code:	IG030951
Approximate Longevity	8-12 weeks
SGN	200
Cutting Height	>6mm
Nitrogen Source	2.6% organic, 6.0% urea, 2.9% MU, 2.6% ammonium
Guaranteed Analysis	14-2-8
Pack Size	20 kg
Pack Coverage	300-600 m <sup>2</sup>

#### Application Information

Application Rate	35-70 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

Nutrient levels applied (kg/ha) from one application					
35g/m <sup>2</sup>			70g/m <sup>2</sup>		
N 49.0	P <sub>2</sub> O <sub>5</sub> 7.0	K <sub>2</sub> O 28.0	N 98.0	P <sub>2</sub> O <sub>5</sub> 14.0	K <sub>2</sub> O 56.0

Suggested soil temperatures for application		
minimum °C	optimum °C	maximum °C
10	18	30





All foliar feeds are liquids but not all liquids are true foliar feeds. One of the key benefits of a true foliar feed is that the nutrients are absorbed through the leaf of the plant and bypass the root system, even in high stress conditions. This not only maximises nutrient uptake but reduces leaching of nutrients into the environment unlike conventional liquid fertilisers.

Our Solar range of activated foliar feeds has been developed to include proprietary complexing agents, surfactants and other formulation aids to provide enhanced uptake and utilisation whilst reducing leaching and volatilisation. The range uses a blend of organic acids, carbohydrates, and other natural organic formulants to achieve optimum leaf uptake and nutrient translocation.

Within the formulation there is an acidifying component which not only helps with the mixing and compatibility but also with nutrient uptake. The complexing agents within the formulation ensure that the 'nutrient' element is protected from adverse chemical reactions with any pesticides which may be added to the tank mix.

Carefully chosen surfactants reduce the surface tension of the spray droplet allowing for optimum spread and contact with the leaf surface, whilst at the same time giving a degree of rain fastness. Further information on Solar foliar feeds can be found on page 22.

Product	Analysis	App. Rate	Longevity	Pack Coverage	Pack Size	Code
<b>Solar N</b>	19-4-4 + Fe	10-20 lt/ha	2-3 weeks	5,000-10,000 m <sup>2</sup>	10 lt	IG040102
<b>Solar K</b>	0-0-10	10-20 lt/ha	2-3 weeks	5,000-10,000 m <sup>2</sup>	10 lt	IG040103
<b>Solar PK</b>	4-43-19	10-20 lt/ha	2-3 weeks	5,000-10,000 m <sup>2</sup>	10 lt	IG040104
<b>Solar C</b>	11-7-7 + Fe	10-20 lt/ha	2-3 weeks	5,000-10,000 m <sup>2</sup>	10 lt	IG040105
<b>Solar Fe</b>	4.6% Fe 5% K <sub>2</sub> O	10-20 lt/ha	2-3 weeks	5,000-10,000 m <sup>2</sup>	10 lt	IG040101
<b>Solar Ca+Mg</b>	9% CaO 4% MgO	10-20 lt/ha	2-3 weeks	5,000-10,000 m <sup>2</sup>	10 lt	IG040106
<b>Solar ProActive</b>	4-43-19	2.5 lt/ha	3-4 weeks	10,000 m <sup>2</sup>	2.5 lt	IG040109
<b>Solar ProActive OneShot</b>	4-43-19	2-4 sachets/ha	2-3 weeks	5-10 ha	20 sachets	IG040121



## Solar N

Solar N is a fully foliar uptake feed containing two nitrogen sources. The combination of these allows for balanced and controlled plant growth. Solar N can be used in isolation, or in combination with other products in a tank mix, utilising the added nitrogen input to boost plant growth.

- ▶ True foliar feed
- ▶ For use on managed amenity turf
- ▶ Contains added phosphate, potassium and iron
- ▶ Fast acting, tank mixable formulation

Product Code:	IG040102
Approximate Longevity	2-3 weeks
Cutting Height	Any
Nitrogen Source	18.4% urea, 1.0% ammonium
Trace Elements	See page 56
Guaranteed Analysis	19-4-4 + Fe
Pack Size	10 lt
Pack Coverage	5,000-10,000m <sup>2</sup>

### Application Information

Application Rate	10-20 lt/ha
Water Rate	300-600 lt/ha
Method	Sprayer

Nutrient levels applied (kg/ha) from one application

10 lt/ha			20 lt/ha		
N 1.9	P <sub>2</sub> O <sub>5</sub> 0.4	K <sub>2</sub> O 0.4	N 3.8	P <sub>2</sub> O <sub>5</sub> 0.8	K <sub>2</sub> O 0.8

Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
14	20	-

## Solar K

Solar K is a potassium based feed. The main application of Solar K is to address low levels of potassium, most regularly found in sand based root zones. The potassium found in Solar K is immediately available, aiding cell wall strength and helping the plant fight disease.

- ▶ Macro and micro-nutrient formulation
- ▶ Fast acting formular
- ▶ A true foliar feed absorbed through the plant leaf
- ▶ Ideal plant stress reliever

Product Code:	IG040103
Approximate Longevity	2-3 weeks
Cutting Height	Any
Trace Elements	See page 56
Guaranteed Analysis	0-0-9.5
Pack Size	10 lt
Pack Coverage	5,000-10,000m <sup>2</sup>

### Application Information

Application Rate	10-20 lt/ha
Water Rate	300-600 lt/ha
Method	Sprayer

Nutrient levels applied (kg/ha) from one application

10 lt/ha			20 lt/ha		
N 0.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 1.0	N 0.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 2.0

Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
10	14	-

### Solar PK

Solar PK is a truly foliar feed, for speeding up seedling plant establishment. It can be used during the spring/summer months for a boost in plant growth particularly in low temperatures. Late summer and autumn applications promote turf hardness and will help to boost plant health and disease resistance.

- ▶ For use on managed amenity turf
- ▶ Fast acting, tank mixable formulation
- ▶ Fully systemic
- ▶ Increases rooting and promotes early establishment

<b>Product Code:</b>	<b>IG040104</b>
Approximate Longevity	2-3 weeks
Cutting Height	Any
Nitrogen Source	4.0% ammonium
Trace Elements	See page 56
Guaranteed Analysis	4-43-19
Pack Size	10 lt
Pack Coverage	5,000-10,000m <sup>2</sup>

#### Application Information

Application Rate	10-20 lt/ha
Water Rate	300-600 lt/ha
Method	Sprayer

Nutrient levels applied (kg/ha) from one application					
10 lt/ha			20 lt/ha		
N 0.4	P <sub>2</sub> O <sub>5</sub> 4.3	K <sub>2</sub> O 1.9	N 0.8	P <sub>2</sub> O <sub>5</sub> 8.6	K <sub>2</sub> O 3.8

Suggested soil temperatures for application		
minimum °C	optimum °C	maximum °C
12	16	-

### Solar C

Solar C is a foliar feed with added Iron. It contains carbohydrates to provide a boost to the nitrogen, phosphate and potassium. Solar C also contains additional natural sugars from molasses which make it an ideal product for use under high stress levels, aiding plant recovery.

- ▶ Macro and micro nutrient formulation
- ▶ A true foliar feed, absorbed through the leaf
- ▶ Fast acting formulation
- ▶ Ensures adequate carbohydrates and amino acids

<b>Product Code:</b>	<b>IG040105</b>
Approximate Longevity	2-3 weeks
Cutting Height	Any
Nitrogen Source	11.0% urea
Trace Elements	See page 56
Guaranteed Analysis	10.8-7.2-7.2 + Fe
Pack Size	10 lt
Pack Coverage	5,000-10,000m <sup>2</sup>

#### Application Information

Application Rate	10-20 lt/ha
Water Rate	300-600 lt/ha
Method	Sprayer

Nutrient levels applied (kg/ha) from one application					
10 lt/ha			20 lt/ha		
N 1.1	P <sub>2</sub> O <sub>5</sub> 0.7	K <sub>2</sub> O 0.7	N 2.2	P <sub>2</sub> O <sub>5</sub> 1.4	K <sub>2</sub> O 1.4

Suggested soil temperatures for application		
minimum °C	optimum °C	maximum °C
15	18	-

### Solar Fe

Solar Fe is a fully formulated foliar feed with added Iron. It has been designed to provide a rapid and efficient uptake of nutrients by the leaf. Solar Fe has a complexed formulation, ensuring compatibility with many other products and making it an ideal tank mix partner.

- ▶ Added Iron gives fast green up
- ▶ A true foliar feed, absorbed through the plant leaf
- ▶ High Potassium levels provide cell wall strength
- ▶ Ensures turf hardness for cold winter months

<b>Product Code:</b>	<b>IG040101</b>
Approximate Longevity	2-3 weeks
Cutting Height	Any
Guaranteed Analysis	4.6% Fe, 5% K <sub>2</sub> O
Pack Size	10 lt
Pack Coverage	5,000-10,000 m <sup>2</sup>

#### Application Information

Application Rate	10-20 lt/ha
Water Rate	300-600 lt/ha
Method	Sprayer

Nutrient levels applied (kg/ha) from one application					
10 lt/ha			20 lt/ha		
N 0.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 0.5	N 0.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 1.0

Suggested soil temperatures for application		
minimum °C	optimum °C	maximum °C
15	18	-



## Solar Ca+Mg

Solar Ca+Mg has been developed for application to turf containing low levels of calcium and magnesium. It can be applied regularly with low application levels, to help provide added colour to the turf. The added calcium in Solar Ca+Mg is vital as it has been shown that calcium is often deficient in managed sports turf situations.

- ▶ Strengthens the plant and provides added green up
- ▶ Minimises top growth
- ▶ Fast acting formulation that can be used in a tank mix
- ▶ A true foliar feed, absorbed through the leaf

**Product Code:** IG040106

Approximate Longevity	2-3 weeks
Cutting Height	Any
Trace Elements	See page 56
Guaranteed Analysis	8.2% CaO, 4.1% MgO
Pack Size	10 lt
Pack Coverage	5,000-10,000m <sup>2</sup>

### Application Information

Application Rate	10-20 lt/ha
Water Rate	300-600 lt/ha
Method	Sprayer

Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
10	14	-



## Solar Pro-Active

Solar Pro-Active is a true foliar feed, high in phosphite, designed to help dramatically reduce plant stress during the summer months. Solar Pro-Active is fully systemic, and is available in a fast acting, stable tank mixable formulation.

- ▶ Spring/summer applications boost plant growth, particularly in low temperatures
- ▶ Late summer and autumn applications promote turf hardness
- ▶ Boosts plant health
- ▶ Improves disease resistance

**Product Code:** IG040109

Approximate Longevity	2-3 weeks
Cutting Height	Any
Nitrogen Source	4.0% ammonium
Trace Elements	See page 56
Guaranteed Analysis	4-43-19
Pack Size	2.5 lt
Pack Coverage	10,000m <sup>2</sup>

### Application Information

Application Rate	2.5 lt/ha
Water Rate	300-600 lt/ha
Method	Sprayer

Nutrient levels applied (kg/ha) from one application

2.5 lt/ha

N 0.10	P <sub>2</sub> O <sub>5</sub> 1.08	K <sub>2</sub> O 0.48
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Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
12	16	-

## Solar Pro-Active OneShot

Solar Pro-Active OneShot is a true foliar feed, high in phosphite, designed to help dramatically reduce plant stress during the summer months. Solar Pro-Active OneShot is fully systemic, and is available in a fast acting, stable tank mixable formulation which can be used in a tank mix with all of the other OneShot products for maximum efficiency.

- ▶ Spring/summer applications boost plant growth, particularly in low temperatures
- ▶ Late summer and autumn applications promote turf hardness
- ▶ Boosts plant health and improves disease resistance

**Product Code:** IG040121

Approximate Longevity	2-3 weeks
Cutting Height	Any
Nitrogen Source	4.0% ammonium
Guaranteed Analysis	4-43-19
Pack Size	20 sachets
Pack Coverage	5-10 ha

### Application Information

Application Rate	2-4 sachets/ha
Water Rate	300-600 lt/ha
Method	Sprayer

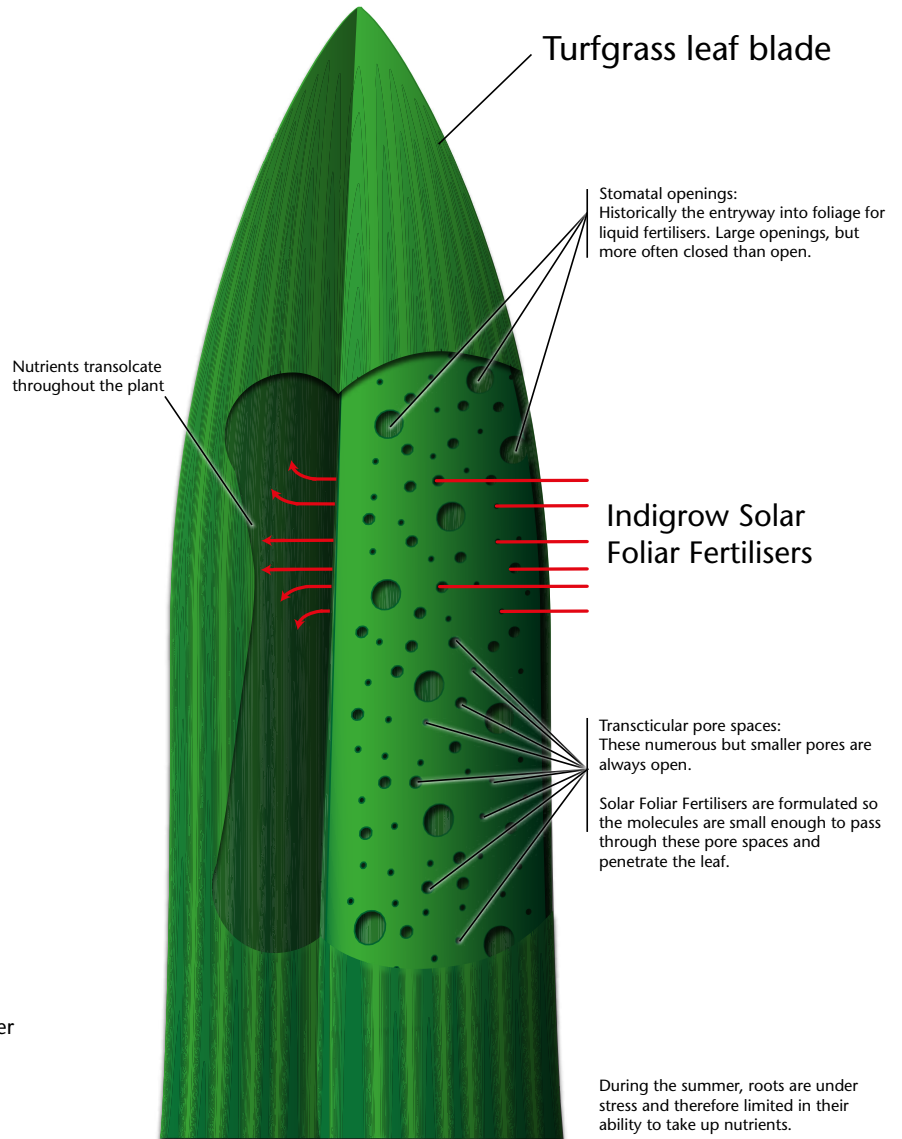
Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
12	16	-

## Solar Foliar Feeds

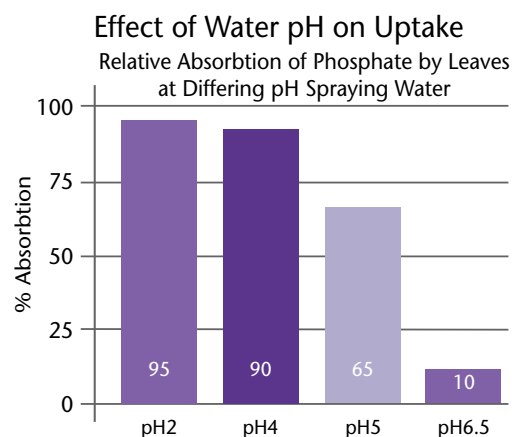
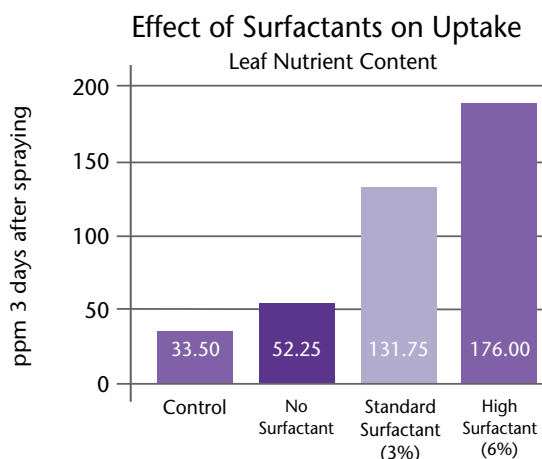
Turf managers are having to maintain healthy grass swards with reduced nutrient and financial input. The use of advanced formulation technologies in Solar foliar fertilisers helps turf managers achieve these aims. All products in the Solar range take into account:

- Long term storage stability
- Compatibility with other products
- Ability to cover the leaf surface
- Good adhesion and rainfastness
- Cuticle penetration and leaf uptake
- Mobility and translocation within the plant
- Mixing, miscibility or dissolution in spray water



## Uptake Efficiency of Solar Foliar Feeds

The efficiency of uptake of many nutrient elements is enhanced by a slightly acidic solution and, where possible, formulations are buffered to take account of this. The spreading action of the surfactants allows uptake through the cuticle of the leaf and does not limit penetration to the stomata.





The Fusion BioGreen Liquids can be used on all turf types in all seasonal conditions. The Fusion BioGreen liquids which make up our list of conventional liquid fertilisers, contain 100% soluble and plant available nutrients as well as a useful complete amino acid and trace element package.

They have all been developed to be 'spoon-fed' throughout the year or to complement a granular fertiliser programme, but equally, can be used regularly as a stand-alone product.

All of the products in our range of conventional liquid fertilisers can be tank mixed with one another, providing the turf manager with the ultimate flexibility of their NPK inputs. Our conventional liquids can also be mixed with the majority of our foliar fertilisers to allow the addition of further trace elements. Further information on tank mixing our products can be found on page 54.

Product	Analysis	App. Rate	Longevity	Pack Coverage	Pack Size	Code
<b>Fusion BioGreen High N</b>	28-0-0	40-80 lt/ha	2-3 weeks	2,500-5,000 m <sup>2</sup>	20 lt	IG050110
				2.5-5.0 ha	200 lt	IG050111
				12.5-25.0 ha	1,000 lt	IG050112
<b>Fusion BioGreen NPK</b>	18-9-9	40-80 lt/ha	2-3 weeks	2,500-5,000 m <sup>2</sup>	20 lt	IG050120
				2.5-5.0 ha	200 lt	IG050121
				12.5-25.0 ha	1,000 lt	IG050122
<b>Fusion BioGreen NK</b>	15-0-12	40-80 lt/ha	2-3 weeks	2,500-5,000 m <sup>2</sup>	20 lt	IG050130
				2.5-5.0 ha	200 lt	IG050131
				12.5-25.0 ha	1,000 lt	IG050132





## Fusion BioGreen High N 28-0-0

Fusion BioGreen High N is comprised of a 28-0-0 analysis. The nitrogen sources provide immediate and long term nutrient availability. It is designed to alleviate plant stress, as well as provide balanced nutrition to the plant. Fusion BioGreen High N also utilises a three-way breakdown process to provide controlled plant growth.

- ▶ For use on all managed turf areas
- ▶ Balanced source of urea, ammonium and nitrate nitrogens
- ▶ Contains added amino acids and trace elements
- ▶ Ideal as a tank mix partner where nitrogen is required

Product Code:	IG050110
Pack Size	20 lt
Pack Coverage	2,500-5,000 m <sup>2</sup>
Product Code:	IG050111
Pack Size	200 lt
Pack Coverage	2.5-5 ha
Product Code:	IG050112
Pack Size	1,000 lt
Pack Coverage	12.5-25 ha
Approximate Longevity	2-3 weeks
Cutting Height	Any
Nitrogen Source	14.0% urea, 7.0% ammoniacal, 7.0% nitrate
Trace Elements	B, Cu, Fe, Mn, Mo, Zn
Guaranteed Analysis	28-0-0

### Application Information

Application Rate	40-80 lt/ha
Water Rate	300-600 lt/ha
Method	Sprayer

#### Nutrient levels applied (kg/ha) from one application

40 lt/ha			80 lt/ha		
N 11.2	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 0.0	N 22.4	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 0.0

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
5	12	25

## Fusion BioGreen NPK 18-9-9

Fusion BioGreen NPK 18-9-9 is a balanced liquid feed containing trace elements and amino acids. Fusion BioGreen NPK contains ammoniacal and urea nitrogen sources which provide a two stage nitrogen source. This ensures there is always nitrogen available to the plant during the main season, without promoting excessive growth.

- ▶ For use on all managed turf areas
- ▶ Contains available phosphate and potash
- ▶ Designed to work in a tank mix with all other Fusion liquids

Product Code:	IG050120
Pack Size	20 lt
Pack Coverage	2,500-5,000 m <sup>2</sup>
Product Code:	IG050121
Pack Size	200 lt
Pack Coverage	2.5-5 ha
Product Code:	IG050122
Pack Size	1,000 lt
Pack Coverage	12.5-25 ha
Approximate Longevity	2-3 weeks
Cutting Height	Any
Nitrogen Source	15.4% urea, 2.6% ammoniacal
Trace Elements	B, Cu, Fe, Mn, Mo, Zn
Guaranteed Analysis	18-9-9

### Application Information

Application Rate	40-80 lt/ha
Water Rate	300-600 lt/ha
Method	Sprayer

#### Nutrient levels applied (kg/ha) from one application

40 lt/ha			80 lt/ha		
N 7.2	P <sub>2</sub> O <sub>5</sub> 3.6	K <sub>2</sub> O 3.6	N 14.4	P <sub>2</sub> O <sub>5</sub> 7.2	K <sub>2</sub> O 7.2

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
10	15	-

## Fusion BioGreen NK 15-0-12

Fusion BioGreen NK contains balanced levels of N and K both of which are used in large quantities throughout the growing season. The balance of nitrogen and potassium helps to strengthen the sward, without promoting excessive growth. Fusion BioGreen NK does not contain any phosphate and can be used in a tank mix with other Fusion BioGreen liquids.

- ▶ For use on all managed turf areas
- ▶ For use in high phosphate soils
- ▶ Ideally suited for regular application in small quantities
- ▶ Phosphate free for management of high phosphate soils

**Product Code:** IG050130

Pack Size 20 lt  
Pack Coverage 2,500-5,000 m<sup>2</sup>

**Product Code:** IG050131

Pack Size 200 lt  
Pack Coverage 2.5-5 ha

**Product Code:** IG050132

Pack Size 1,000 lt  
Pack Coverage 12.5-25 ha  
Approximate Longevity 2-3 weeks  
Cutting Height Any  
Nitrogen Source 15.0% urea  
Trace Elements B, Cu, Fe, Mn, Mo, Zn  
Guaranteed Analysis 15-0-12

### Application Information

Application Rate 40-80 lt/ha  
Water Rate 300-600 lt/ha  
Method Sprayer

Nutrient levels applied (kg/ha) from one application

40 lt/ha			80 lt/ha		
N 6.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 4.8	N 12.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 9.6

Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
12	16	25





Soluble fertilisers can provide an economical method of getting nutrients onto turf. Indigrow's soluble fertilisers are highly soluble and are easily absorbed by the plant. Our products will dissolve fully, even in cold water.

The soluble fertilisers within the range also include chelated micronutrients. These stable nutrients not only provide essential micronutrients to the plant, but can also be used in a tank mix, allowing the turf manager to supplement our soluble products where necessary. Further details on tank mixing our products can be found on page 54.

Product	Analysis	App. Rate	Longevity	Pack Coverage	Pack Size	Code
<b>Fusion Tracer OneShot</b>	8.4% Fe, 1.81% Mn, 1.16% Zn, 0.9% B, 0.23% Cu, 0.15% Mo	2-4 sachets/ha	2-4 weeks	5-10 ha	20 sachets	IG050215
<b>Fusion Soluble N</b>	46-0-0	20 kg/ha	2-4 weeks	5,000 m <sup>2</sup>	10 kg	IG050202
<b>Fusion Soluble NPK</b>	32-5-10	20 kg/ha	2-4 weeks	5,000 m <sup>2</sup>	10 kg	IG050201
<b>Fusion Soluble High K</b>	13-0-46	20 kg/ha	2-4 weeks	5,000 m <sup>2</sup>	10 kg	IG050204



## Fusion Tracer OneShot

Fusion Tracer OneShot is a soluble trace element package and has been developed to include a high concentration of micronutrients. This enables it to be used on turf areas where the availability of trace elements is minimal. Fusion Tracer OneShot is a highly efficient formulation for foliar application to a wide range of managed amenity turf. It can be used in a tank mix with a wide range of Indigrow products, including the rest of the OneShot range.

- ▶ Particularly effective on sand-based greens
- ▶ Designed to work on soils with high pH levels
- ▶ Compatible with most approved pesticides
- ▶ Additives improve leaf penetration, uptake and nutrient absorption

<b>Product Code:</b>	<b>IG050215</b>
Approximate Longevity	2-4 weeks
Cutting Height	Any
Trace Elements	8.4% Fe, 1.81% Mn, 1.16% Zn, 0.9% B, 0.23% Cu, 0.15% Mo
Pack Size	20 sachets
Pack Coverage	5-10 ha

### Application Information

Application Rate	2-4 sachets/ha
Water Rate	300-600 lt/ha
Method	Sprayer

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
8	16	-

## Fusion Soluble N 46-0-0

Fusion Soluble N is a highly soluble source of nitrogen. It has been designed to work as a stand-alone product, or in conjunction with other fertilisers to boost nitrogen content in the soil. Fusion Soluble N is a cost effective solution for managers with large areas of turf to feed and should be used as part of a planned nutrient programme.

- ▶ High nitrogen formulation
- ▶ Provides quick green up and steady growth
- ▶ Cost effective alternative to conventional liquid fertiliser
- ▶ Use on greens, tees, fairways and managed amenity sports turf

<b>Product Code:</b>	<b>IG050202</b>
Approximate Longevity	2-4 weeks
Nitrogen Source	46.0% urea
Trace Elements	B, Cu, Fe, Mn, Zn, Mo
Guaranteed Analysis	46-0-0
Pack Size	10 kg
Pack Coverage	5,000m <sup>2</sup>

### Application Information

Application Rate	20 kg/ha
Water Rate	300-600 lt/ha
Method	Sprayer

#### Nutrient levels applied (kg/ha) from one application

20kg/ha		
N 9.2	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 0.0

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
12	15	-

## Fusion Soluble NPK 32-5-10

Fusion Soluble NPK contains 100% soluble, readily available, plant food. It has been designed to provide a constant source of plant available nutrients irrespective of weather conditions. Fusion Soluble NPK should be used as part of a planned nutrient programme and can be spoon fed throughout the year.

- ▶ Use on greens, tees, fairways & managed amenity sports turf
- ▶ Fully balanced nutrient formulation
- ▶ Economic alternative to conventional liquid fertiliser
- ▶ Contains comprehensive list of trace elements

<b>Product Code:</b>	<b>IG050201</b>
Approximate Longevity	2-3 weeks
Nitrogen Source	27.0% urea, 1.9% ammoniacal, 2.9% nitrate
Trace Elements	B, Cu, Fe, Mn, Zn, Mo
Guaranteed Analysis	32-5-10
Pack Size	10 kg
Pack Coverage	5,000m <sup>2</sup>

### Application Information

Application Rate	20 kg/ha
Water Rate	300-600 lt/ha
Method	Sprayer

#### Nutrient levels applied (kg/ha) from one application

20kg/ha		
N 6.4	P <sub>2</sub> O <sub>5</sub> 1.0	K <sub>2</sub> O 2.0

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
12	15	-

## Fusion Soluble High K 13-0-46

Fusion Soluble High K contains a high concentration of potassium providing additional cell wall strength and drought control for the plant. An ideal spring application product, providing excellent green up and growth for up to four weeks. Fusion Soluble High K should be used as part of a planned nutrient programme.

- ▶ Use on greens, tees, fairways & managed amenity sports turf
- ▶ High potassium formulation
- ▶ Good spring starter
- ▶ Provides excellent cool temperature response

<b>Product Code:</b>	<b>IG050204</b>
Approximate Longevity	2-4 weeks
Potassium Source	46.0% from potassium nitrate
Trace Elements	B, Cu, Fe, Mn, Zn, Mo
Guaranteed Analysis	13-0-46
Pack Size	10 kg
Pack Coverage	5,000m <sup>2</sup>

### Application Information

Application Rate	20 kg/ha
Water Rate	300-600 lt/ha
Method	Sprayer

#### Nutrient levels applied (kg/ha) from one application

20kg/ha		
N 2.6	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 9.2

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
10	15	-

## OneShot Application Sachets

The OneShot range is a collection of concentrated products in easy-to-use, no mess sachets. The Turbine Reaction OneShot and Compass Bio-Active OneShot are 100% organic, whilst the others are all exceptionally environmentally friendly, with a vast reduction in packaging waste and transport costs.

All of the OneShot products are fully tank mixable with each other, and can be used in any combination. They can be used to enhance virtually any tank mix, with a full range of options available. Because the OneShot products are highly concentrated, they offer the turf manager a very cost effective method of adding wetting agent, macro or micro nutrients or other additives to any spray mix.



Product	Analysis	App. Rate	Longevity	Pack Coverage	Pack Size	Code
<b>Impact Humik OneShot</b>	60.0% humic acid 15.0% fulvic acid	2-4 sachets/ha	2-4 weeks	5-10 ha	20 sachets	IG030601
<b>Turbine Reaction OneShot</b>	16.0% L-amino acids	2-4 sachets/ha	2-3 weeks	5-10 ha	20 sachets	IG080312
<b>Solar ProActive OneShot</b>	4-43-19	2-4 sachets/ha	2-3 weeks	5-10 ha	20 sachets	IG040121
<b>Fusion Tracer OneShot</b>	see page 29	2-4 sachets/ha	2-4 weeks	5-10 ha	20 sachets	IG050215
<b>Compass Bio-Active OneShot</b>	see page 30	2-4 sachets/ha	4-6 weeks	5-10 ha	20 sachets	IG090110
<b>Magnum Forty Four OneShot</b>	see page 30	2-4 sachets/ha	2-4 weeks	5-10 ha	20 sachets	IF020108
<b>OneShot Mixers</b>	-	2-4 sachets/ha	-	1-2 ha	20 sachets	IG010901
<b>Optik Blue OneShot</b>	-	1 sachet/ 100 lt water	24-48 hrs	5-10 ha	20 sachets	IG060111
<b>Optik Isolator OneShot</b>	-	2-4 sachets/ 300 lt water	-	5-10 ha	20 sachets	IG060179

## Impact Humik OneShot

A new addition to the OneShot range is Impact Humik OneShot, a soluble Humic acid complex. Humik contains both Humic and Fulvic acids and is a source of potassium. Humic acid has many functions in the soil both chemical and physical. Chemically it aids in the breakdown of toxins and directly reduces the plants uptake of toxins. It also directly encourages microbial growth, both flora and fauna, which add to general soil fertility and health. With today's sand based constructions, Impact Humik OneShot should be part of any integrated turf management programme.

- ▶ Helps promote microbial growth
- ▶ Fully soluble
- ▶ Contains added potassium
- ▶ Can be used in a tank mix with all other OneShot products

**Product Code:** IG030601

Approximate Longevity	2-4 weeks
Guaranteed Analysis	60.0% humic acid 15.0% fulvic acid
Pack Size	20 sachets
Pack Coverage	5-10 Ha

### Application Information

Application Rate	2-4 sachets/ha
Water Rate	300-600 lt
Method	Sprayer

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
10	-	-

## Turbine Reaction OneShot

Turbine Reaction is a plant Biostimulant and stress relieving agent containing 16% of plant available free L-amino acids, which, when applied to plants suffering from environmental stress can help improve turf health and quality. Turbine Reaction OneShots are a simple and effective, zero mess, application method.

- ▶ Helps turf recover from drought, frost, fungal diseases and pest attack
- ▶ Rapidly metabolised
- ▶ Relieves plant stress symptoms

**Product Code:** IG080312

Approximate Longevity	2-3 weeks
Guaranteed Analysis	16.00% L-amino acids
Pack Size	20 sachets
Pack Coverage	5-10 ha

### Application Information

Application Rate	2-4 sachets/ha
Water Rate	300-600 lt/ha
Method	Sprayer

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
8	15+	-

## Solar Pro-Active OneShot

Solar Pro-Active OneShot is a true foliar feed, high in phosphite, designed to help dramatically reduce plant stress during the summer months. Solar Pro-Active OneShot is fully systemic, and is available in a fast acting, stable tank mixable formulation which can be used in a tank mix with all of the other OneShot products for maximum efficiency.

- ▶ Spring/summer applications boost plant growth, particularly in low temperatures
- ▶ Late summer and autumn applications promote turf hardness
- ▶ Boosts plant health and improves disease resistance

**Product Code:** IG040121

Approximate Longevity	2-3 weeks
Cutting Height	Any
Nitrogen Source	4.0% ammonium
Guaranteed Analysis	4-43-19
Pack Size	20 sachets
Pack Coverage	5-10 ha

### Application Information

Application Rate	2-4 sachets/ha
Water Rate	300-600 lt/ha
Method	Sprayer

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
12	16	-

## Fusion Tracer OneShot

Fusion Tracer OneShot is a soluble trace element package and has been developed to include a high concentration of micronutrients. This enables it to be used on turf areas where the availability of trace elements is minimal. Fusion Tracer OneShot is a highly efficient formulation for foliar application to a wide range of managed amenity turf. It can be used in a tank mix with a wide range of Indigrow products, including the rest of the OneShot range.

- ▶ Particularly effective on sand-based greens
- ▶ Designed to work on soils with high pH levels
- ▶ Compatible with most approved pesticides
- ▶ Additives improve leaf penetration, uptake and nutrient absorption

**Product Code:** IG050215

Approximate Longevity	2-4 weeks
Cutting Height	Any
Trace Elements	8.4% Fe, 1.81% Mn, 1.16% Zn, 0.9% B, 0.23% Cu, 0.15% Mo
Pack Size	20 sachets
Pack Coverage	5-10 ha

### Application Information

Application Rate	2-4 sachets/ha
Water Rate	300-600 lt/ha
Method	Sprayer

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
8	16	-





## Magnum Forty-Four OneShot

Magnum One Shot is a highly concentrated penetrant wetting agent designed to give economical yet superior turf wetting and water penetration on hydrophobic soils. It can be used to aid the spread and penetration of foliar fertilisers. Magnum One Shot is contained in a sachet for large scale economic use and tank mixing.

- ▶ For use on large areas such as fairways and outfields
- ▶ Use prior to rain to aid irrigation and water movement
- ▶ Sachet provides a no mess solution
- ▶ Environmentally friendly and biodegradable

**Product Code:** IF020108

Approximate Longevity	2-4 weeks
Cutting Height	Any
Pack Size	20 sachets
Pack Coverage	5-10 ha

### Application Information

Application Rate	2-4 sachets/ha
Water Rate	300-600 lt/ha
Method	Sprayer

## OneShot Application Sachets

### Compass Bio-Active OneShot

Compass Bio-Active OneShot is a plant stimulant and soil conditioner in the form of a pure seaweed, fully soluble powder. It is manufactured from *Ascophyllum nodosum* seaweed using gentle spray drying technology to avoid excessive thermal degradation. Compass Bio-Active OneShot can be used in a tank mix with our Fusion and Solar products. Bio-Active OneShot is contained in a sachet for large scale economic use.

- ▶ Can be used as part of an organic fertiliser program
- ▶ Highly economical, super-concentrated sachets
- ▶ Low application rates, usable on all amenity turf areas
- ▶ Applications will aid plant stress relief

**Product Code:** IG090110

Approximate Longevity	4-6 weeks
Cutting Height	Any
Trace Elements	See page 35
Pack Size	20 sachets
Pack Coverage	5-10 ha

### Application Information

Application Rate	2-4 sachets/ha
Water Rate	300-600 lt/ha
Method	Sprayer

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
4	10+	-

### OneShot Mixers

OneShot Mixers have been packaged to give the turf manager many tank mix options in a single pack. Each of the individual components have been proven to have bio stimulant properties all with different modes of action. The OneShot range can be tank mixed with many different products in the Indigrow range from NPK to pesticides. Containing humic acid, seaweed, wetting agent, amino acids and phosphite, the pack provides a wide range of supplements which can be added to a tank mix to improve all round turf health and stress tolerance. OneShot Mixers can be used to enhance tank mixes for fine turf as well as fairways and outfields.

OneShot Mixers contains four sachets of each of the following:

- ▶ Impact Humik OneShot
- ▶ Solar Pro-Active OneShot
- ▶ Magnum Forty-Four OneShot
- ▶ Turbine Reaction OneShot
- ▶ Compass Bio-Active OneShot

**Product Code:** IG010901

Pack Size	20 sachets
Pack Coverage	1-2 ha

### Application Information

Application Rate	2-4 sachets/ha
Water Rate	300-600 lt
Method	Sprayer

## Optik Blue OneShot

Optik Blue OneShot is an enhanced spray pattern dye designed to highlight and help eliminate overlapping sprays, missed areas, spray drift or blocked nozzles. It may also be used for marking out temporary greens. Optik Blue OneShot will remain visible for 24 – 48 hours, after which they will gradually fade depending on light intensity and/or rainfall.

- ▶ Fades rapidly after 24-48 hours
- ▶ Highlights sprayed areas, eliminating any overlapping
- ▶ Complexing agent to reduce the staining effect of the dye
- ▶ Fully tank mixable with a wide range of fungicides and herbicides

**Product Code:** IG060111

Approximate Longevity 24-48 hours  
Pack Size 20 sachets  
Pack Coverage 5-10 Ha

### Application Information

Application Rate 1 sachet  
Water Rate 100 lt  
Method Sprayer

## Optik Isolator OneShot

Optik Isolator OneShot is a multi-functional spraying aid designed to reduce pH, improve mixing and compatibility in the tank. The formulation enhances the efficacy of foliar applied fertilisers by giving optimum spray tank stability, accurate application and improved plant uptake and active ingredient translocation. It is a cost effective water treatment additive containing complexed acidifiers to reduce pH and bicarbonates. It should be used as a spray tank buffer for high pH and high alkalinity water.

- ▶ Complexed acidifiers to reduce pH and hydrolysis
- ▶ A long chain polymer based water softener with low foaming formulation
- ▶ A sequestering agent to isolate Cationic contaminants
- ▶ Buffering agents to improve tank mixing compatibility

**Product Code:** IG060179

Pack Size 20 sachets  
Pack Coverage 5-10 ha

### Application Information

Application Rate 2-4 sachets  
Water Rate 300 lt  
Method Sprayer

Typically, for water at a starting pH of 7.8, the addition of 2-4 sachets ml per 300 lt of spray tank water will reduce the pH to approximately pH 5.5. The amount required will depend on a number of factors including the starting pH, the hardness of the water and the desired finishing pH.

## Application Programmes

Fine turf in season anti stress	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Turbine Reaction OneShot				2 sa/ha	2 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	2 sa/ha		
Compass Bio-Active OneShot				2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha		
Humik OneShot				2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha		
Solar Pro-Active OneShot				4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha		

Fine turf full year programme	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Magnum Forty Four OneShot	4 sa/ha	4 sa/ha	4 sa/ha						4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha
Turbine Reaction OneShot				2 sa/ha	2 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	2 sa/ha		
Compass Bio-Active OneShot				2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha
Humik OneShot				2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha
Solar Pro-Active OneShot	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha
Fusion Tracer OneShot				2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha			
Optik Blue OneShot	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha

Outfield/fairway fusion liquid, Primo Maxx & OneShot tankmix	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Turbine Reaction OneShot				2 sa/ha	2 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha			
Compass Bio-Active OneShot				2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha			
Fusion Tracer OneShot				2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha	2 sa/ha			
Optik Blue OneShot				4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha	4 sa/ha			

All OneShot application rates listed in sachets/ha and should be tank mixed where applicable

All OneShot products are tank mix compatible with Fusion BioGreen liquids and Solar Foliar Feeds

If One shots are not being sprayed as an addition to Fusion liquids or Solar Foliars then the full 4 sa/ha should be used

Indigrow's Compass brand comprises a unique range of molecular seaweed and carbohydrate extract products. These seaweed products are produced using hand harvested *ascophyllum nodosum*, grown at a renewable, sustainable and environmentally friendly source.

Compass products are seaweed based, utilising its ability to stimulate root growth. The seaweed helps the plant to produce thicker and stronger stems leading to an increase in vegetative growth.

The seaweed used in the Compass products is extracted from the plant using the latest cold cell burst technology. This technology is designed to keep all of the marine molecules intact, allowing them to maintain their bioactive properties. Compass molecular seaweed extract is rich in auxins, gibberellins, cytokinins, vitamins, minerals and other plant hormone-like molecules. The end product is concentrated and finely filtered to ensure maximum solubility and guarantee ease of application.

The hormones found in the seaweed also help to protect the plant at times of stress. This can include protection from disease, insects, cold weather and drought. These benefits help to ensure that the turf maintains its colour and strength, also ensuring that it can be used year round.

The Compass range helps with nutrient uptake. This is due to the indoles found in the seaweed extracts. As nutrient uptake is vital to the effectiveness of other liquid fertilisers, products in the Compass range are ideal partners to Indigrow's Solar and Fusion products, particularly the use of Compass Bio-Active in a tank mix.



Product	Analysis	App. Rate	Longevity	Pack Coverage	Pack Size	Code
<b>Compass Bio-Active</b>	see page 35	10-20 lt/ha	4-6 weeks	5,000-10,000 m <sup>2</sup> 6-12 ha	10 lt 120 lt	IG090101 IG090102
<b>Compass Bio-Complete</b>	see page 35	10-20 lt/ha	4-6 weeks	5,000-10,000 m <sup>2</sup>	10 lt	IG090103
<b>Impact Humik OneShot</b>	60.0% humic acid 15.0% fulvic acid	2-4 sachets/ha	2-4 weeks	5-10 ha	20 sachets	IG030601
<b>Turbine Reaction OneShot</b>	16.0% L-amino acids	2-4 sachets/ha	2-3 weeks	5-10 ha	20 sachets	IG080312
<b>Compass Bio-Active OneShot</b>	see page 35	2-4 sachets/ha	4-6 weeks	5-10 ha	20 sachets	IG090110
<b>Compass Composted Seaweed</b>	2-2-1	35-75 g/m <sup>2</sup>	4-6 weeks	250-575 m <sup>2</sup>	20 kg	IG090109
<b>Compass Granular</b>	4-0-0 + 30% CaO	20-40 g/m <sup>2</sup>	4-6 weeks	500-1,000 m <sup>2</sup>	20 kg	IG090105



## Compass Bio-Active

Compass Bio-Active is a highly concentrated, pure seaweed, liquid plant stimulant and soil conditioner. The Bio-Active product fully utilises the Indigrow cold water extraction process which prevents the loss of many beneficial nutrients. Compass Bio-Active can be used in a tank mix with Indigrow Fusion liquids and Solar products.

- ▶ Can be used as part of an organic fertiliser program
- ▶ Low application rates, usable on all amenity turf areas
- ▶ Applications will aid plant stress relief
- ▶ Nutrient breakdown available on page 35

Product Code:	IG090101
Pack Size	10 lt
Pack Coverage	5,000-10,000 m <sup>2</sup>

Product Code:	IG090102
Pack Size	120 lt
Pack Coverage	6-12 ha
Approximate Longevity	4-6 weeks
Cutting Height	Any
Trace Elements	See page 35

### Application Information

Application Rate	10-20 lt/ha
Water Rate	300-600 lt/ha
Method	Sprayer

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
4	10+	-

## Compass Bio-Complete

Compass Bio-Complete is a mix of seaweed, iron and wetting agent. Formulated for cooler weather conditions, Compass Bio-Complete contains 16.5% readily plant available seaweed to help promote root growth and 3.3% iron for turf hardening. The added 1.6% wetting agent utilises the same technology as Magnum Forty-Four.

- ▶ An excellent turf hardener
- ▶ Improves colour without encouraging new growth
- ▶ Helps reduce surface moisture
- ▶ Minimises disease risk

Product Code:	IG090103
Approximate Longevity	4-6 weeks
Cutting Height	Any
Guaranteed Analysis	16.5% seaweed, 3.3% Fe & 1.6% wetting agent
Pack Size	10 lt
Pack Coverage	5,000-10,000 m <sup>2</sup>

### Application Information

Application Rate	10-20 lt/ha
Water Rate	300-600 lt/ha
Method	Sprayer

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
4	10+	-

## Impact Humik OneShot

A new addition to the OneShot range is Impact Humik OneShot, a soluble Humic acid complex. Humik contains both Humic and Fulvic acids and is a source of potassium. Humic acid has many functions in the soil both chemical and physical. Chemically it aids in the breakdown of toxins and directly reduces the plants uptake of toxins. It also directly encourages microbial growth, both flora and fauna, which add to general soil fertility and health. With today's sand based constructions, Impact Humik OneShot should be part of any integrated turf management programme.

- ▶ Helps promote microbial growth
- ▶ Fully soluble
- ▶ Contains added potassium
- ▶ Can be used in a tank mix with all other OneShot products

Product Code:	IG030601
Approximate Longevity	2-4 weeks
Guaranteed Analysis	60.0% humic acid 15.0% fulvic acid
Pack Size	20 sachets
Pack Coverage	5-10 Ha

### Application Information

Application Rate	2-4 sachets/ha
Water Rate	300-600 lt
Method	Sprayer

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
10	-	-

## Turbine Reaction OneShot

Turbine Reaction is a plant Biostimulant and stress relieving agent containing 16% of plant available free L-amino acids, which, when applied to plants suffering from environmental stress can help improve turf health and quality. Turbine Reaction OneShots are a simple and effective, zero mess, application method.

- ▶ Helps turf recover from drought, frost, fungal diseases and pest attack
- ▶ Rapidly metabolised
- ▶ Relieves plant stress symptoms

Product Code:	IG080312
Approximate Longevity	2-3 weeks
Guaranteed Analysis	16.00% L-amino acids
Pack Size	20 sachets
Pack Coverage	5-10 ha

### Application Information

Application Rate	2-4 sachets/ha
Water Rate	300-600 lt/ha
Method	Sprayer

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
8	15+	-

### Compass Bio-Active OneShot

Compass Bio-Active OneShot is a plant stimulant and soil conditioner in the form of a pure seaweed, fully soluble powder. It is manufactured from *Ascophyllum nodosum* seaweed using gentle spray drying technology to avoid excessive thermal degradation. Compass Bio-Active OneShot can be used in a tank mix with our Fusion and Solar products. Bio-Active OneShot is contained in a sachet for large scale economic use.

- ▶ Can be used as part of an organic fertiliser program
- ▶ Highly economical, super-concentrated sachets
- ▶ Low application rates, usable on all amenity turf areas
- ▶ Applications will aid plant stress relief

<b>Product Code:</b>	<b>IG090110</b>
Approximate Longevity	4-6 weeks
Cutting Height	Any
Trace Elements	See page 35
Pack Size	20 sachets
Pack Coverage	5-10 ha

#### Application Information

Application Rate	2-4 sachets/ha
Water Rate	300-600 lt/ha
Method	Sprayer

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
4	10+	-

### Compass Composted Seaweed

Compass Composted Seaweed is a 100% organic product. It comprises of fine 1.5mm homogenous prills, leading to long lasting micronutrient and biostimulant activity. Used as a soil improver, it builds up the humus structure of the soil, stimulates microbial activity, and provides a range of micro nutrients as well as vitamins and alginates. A single application provides a slow-acting, long lasting plant food which is broken down over a period of months by the soil bacteria providing a health benefit to all sports turf.

- ▶ Fully organic composted seaweed
- ▶ Regular application help rectify calcium imbalance
- ▶ Very easy to apply with low application rates
- ▶ Aids recovery after plant stress

<b>Product Code:</b>	<b>IG090109</b>
Approximate Longevity	4-6 weeks
SGN	150
Cutting Height	>6mm
Nitrogen Source	2.0% organic
Trace Elements	MgO, Mn, Zn, B, Cu
Guaranteed Analysis	2-2-1
Pack Size	20 kg
Pack Coverage	250-575 m <sup>2</sup>

#### Application Information

Application Rate	35-75 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

#### Nutrient levels applied (kg/ha) from one application

35g/m <sup>2</sup>			75g/m <sup>2</sup>		
N 7.0	P <sub>2</sub> O <sub>5</sub> 7.0	K <sub>2</sub> O 3.5	N 15.0	P <sub>2</sub> O <sub>5</sub> 15.0	K <sub>2</sub> O 7.5

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
10	12+	-

### Compass Granular 4-0-0+30% CaO

Compass Granular is a new generation, high-tech, homogenous, fine turf fertiliser with added seaweed. It is produced from the roots of the seaweed plant, resulting in a calcified seaweed soil conditioner with a small amount of added nitrogen, seaweed extracts and other minerals. Compass Granular is rich in calcium and magnesium resulting in improved seedling establishment and root growth, making it an ideal product for use after spiking, hollow coring, scarifying, turfing or overseeding.

- ▶ Regular applications help rectify calcium imbalance
- ▶ Natural plant hormones aid seedling germination
- ▶ Stress reliever for seedlings and established turf
- ▶ Usable on all amenity areas, all year round

<b>Product Code:</b>	<b>IG090105</b>
Approximate Longevity	4-6 weeks
SGN	100
Cutting Height	>2mm
Nitrogen Source	4.0% urea
Guaranteed Analysis	4-0-0 + 30% CaO, 2% MgO
Pack Size	20 kg
Pack Coverage	500-1,000 m <sup>2</sup>

#### Application Information

Application Rate	20-40 g/m <sup>2</sup>
Water Rate	N/A
Method	Spreader

#### Nutrient levels applied (kg/ha) from one application

20g/m <sup>2</sup>			40g/m <sup>2</sup>		
N 8.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 0.0	N 16.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 0.0

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
6	10+	-

## Compass Composted Seaweed Specifications

Item	Detail Ingredients	Guaranteed Value
<b>N - P<sub>2</sub>O<sub>5</sub> - K<sub>2</sub>O</b>	Amino acid Vegetable polysaccharide Vegetable fibre	5%
<b>Alga Bioactive Matter</b>	Alginic acid Cytokinins Auxins Absciscic acid Betaines	20%
<b>Organic Matter</b>	Seaweed organic matter Humic acid Vegetable protein	70%

## Compass Bio-Complete, Compass Bio-Active and Bio-Active OneShot Seaweed Source Breakdown

	Compass Bio-Complete	Compass Bio-Active Liquid	Compass Bio-Active OneShot		Compass Bio-Complete	Compass Bio-Active Liquid	Compass Bio-Active OneShot
<b>Carbohydrates</b>				<b>Amino Acids Analysis</b>			
Mannitol	-	7.2%	-	Alanine	0.003%	0.02%	0.19%
Alginic acid	11.0%	12.3%	12.0%	Arginine	0.4%	0.00%	0.01%
Laminarins	-	10.0%	-	Aspartic Acid	0.006%	0.04%	0.25%
Fucoidin	4.5%	4.5%	-	Cystine	0.001%	0.01%	0.01%
Phenols/Polyphenols	0.02%	-	-	Glutamic Acid	0.093%	0.15%	0.53%
				Glycine	0.029%	0.05%	0.17%
<b>Mayor Nutrients</b>				Trimethylglycine	2.00%	2.00%	-
Nitrogen as N	0.4%	0.07%	2.7%	Isoluecine	0.001%	0.00%	0.08%
Phosphorous as P	0.3%	0.02%	4.7%	Histidine	0.008%	0.00%	0.04%
Potassium as K	0.39%	0.42%	14.0%	Leucine	0.016%	0.00%	0.20%
				Lysine	0.004%	0.00%	0.05%
<b>Secondary Nutrients</b>				Methionine	0.001%	0.00%	0.8%
Magnesium as Mg	1.08%	0.11%	-	Phenylalanine	0.003%	0.00%	0.11%
Sulphur as S	0.43%	0.35%	-	Proline	0.028%	0.00%	0.10%
Calcium as Ca	0.46%	0.10%	-	Serine	0.008%	0.00%	0.01%
				Tryptophan	-	0.02%	-
<b>Trace Element Analysis</b>				Tyrosine	0.002%	0.00%	0.02%
Boron as B	6.0 ppm	17.5 ppm	-	Valine	0.003%	0.005%	0.19%
Cobalt as Co	4.0 ppm	-	-	<b>Plant Hormones</b>			
Copper as Cu	3.0 ppm	0.15 ppm	-	Betaines	0.01%	0.04%	
Iron as Fe	100.0 ppm	26.0 ppm	-	Gibberillins	49.0 ppm	155 ppm	
Manganese as Mn	4.0 ppm	19.0 ppm	-	Auxins	82.0 ppm	90.15 ppm	
Zinc as Zn	67.0 ppm	0.7 ppm	-	Cytokinins	29.0 ppm	289 ppm	





The iron products manufactured by Indigrow have been developed to help meet the needs of turf managers around the world. Including a granular, liquid and soluble form, they offer maximum choice to the modern turf care professional.

Iron is an essential constituent of the chlorophyll molecule and regular applications of iron will stimulate chlorophyll production.

Applications of Fusion iron supplements will result in dark green turf and will help to toughen the sward, providing disease and stress resistance. Many of our soluble and granular iron supplements have full micronutrient packages, boosting nutrient levels on all turf types.

The Vector range of fertilisers has been formulated as an economical alternative to traditional products. The iron source used in Vector 9 Iron is not as tank-mixable as that used in Fusion Liquid Fe and any thoughts of tank mixing should adhere to our compatibility guide on page 54.

Product	Analysis	App. Rate	Longevity	Pack Coverage	Pack Size	Code
<b>Fusion Liquid Fe</b>	6.5% Fe	10-20 lt/ha	4-6 weeks	5,000-10,000 m <sup>2</sup> 10 - 20 ha 50 - 100 ha	10 lt 200 lt 1,000 lt	IG050102 IG050103 IG050104
<b>Vector 9 Iron</b>	9.0% Fe	40-80 lt/ha	4-6 weeks	1,250-2,500 m <sup>2</sup> 2.5 - 5.0 ha 12.5 - 25.0 ha	10 lt 200 lt 1,000 lt	IGB020110 IGB020110/200 IGB020110/IBC
<b>Fusion Granular Fe</b>	2-0-10 + 9.0% Fe	25-40 g/m <sup>2</sup>	12-18 weeks	375-600 m <sup>2</sup>	15 kg	IG050301
<b>Fusion Soluble Fe</b>	20.0% Fe	20 kg/ha	2-4 weeks	5,000 m <sup>2</sup>	10 kg	IG050203

## Fusion Liquid Fe

Fusion Liquid Fe is a concentrated liquid iron formulation containing 6.5% Fe for application throughout the year. The Iron in Fusion Liquid Fe is in complexed form meaning it can be tank mixed with other products in the Fusion range without fear of precipitation of insoluble particles. Regular applications of Fusion Liquid Fe will not stimulate growth and can be used as part of an IPM programme.

- ▶ For use on fine turf areas including golf and bowling greens
- ▶ Provides 6 weeks of green up without blackening
- ▶ Does not encourage excessive growth
- ▶ Toughens sward providing disease and stress resistance

**Product Code:** IG050102

Pack Size 10 lt  
Pack Coverage 5,000-10,000m<sup>2</sup>

**Product Code:** IG050103

Pack Size 200 lt  
Pack Coverage 10-20 ha

**Product Code:** IG050104

Pack Size 1,000 lt  
Pack Coverage 50-100 ha  
Approximate Longevity 4-6 weeks  
Cutting Height Any  
Guaranteed Analysis 6.5% Fe

### Application Information

Application Rate 10-20 lt/ha  
Water Rate 300-600 lt/ha  
Method Sprayer

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
10	15	-

## Vector Liquid 9 Iron

Vector Liquid 9 Iron should be used to help give turf a good, healthy colour without promoting excessive growth. Vector 9 Iron can also be used to help with turf strength during winter months, worm and moss suppression and to improve overall turf health, including making the turf more resistant to stress and disease.

- ▶ Enhances chlorophyll production
- ▶ Promotes excellent turf colour
- ▶ Cost effective formulation
- ▶ Designed for use on greens, tees and fairways

**Product Code:** IGB020110

Pack Size 10 lt  
Pack Coverage 1,250-2,500 m<sup>2</sup>

**Product Code:** IGB020110/200

Pack Size 200 lt  
Pack Coverage 2.5-5 ha

**Product Code:** IGB020110/IBC

Pack Size 1,000 lt  
Pack Coverage 12.5-25 ha  
Approximate Longevity 4 - 6 weeks  
Cutting Height >2mm  
Guaranteed Analysis 9% Fe

### Application Information

Application Rate 40-80 lt/ha  
Water Rate 300-600 lt/ha  
Method Sprayer

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
14	18	28

## Fusion Granular Fe

The revised formulation of Fusion Granular Fe is a balanced nitrogen and potassium analysis with added iron. This long lasting formulation provides sustained green up without promoting excessive growth. Fusion Granular Fe will work effectively in lower temperatures and contains an added surfactant that helps with the rapid uptake of iron.

- ▶ Ideal tournament preparation product
- ▶ Provides very rapid green up
- ▶ Slow release of iron

**Product Code:** IG050301

Approximate Longevity 12-18 weeks  
Cutting Height >2mm  
Nitrogen Source 2.0% ammoniacal  
Guaranteed Analysis 2-0-10 + 9.0% Fe  
Pack Size 15 kg  
Pack Coverage 375-600 m<sup>2</sup>

### Application Information

Application Rate 25-40 g/m<sup>2</sup>  
Water Rate N/A  
Method Spreader

#### Nutrient levels applied (kg/ha) from one application

25 g/m <sup>2</sup>			40 g/m <sup>2</sup>		
N 5.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 25.0	N 8.0	P <sub>2</sub> O <sub>5</sub> 0.0	K <sub>2</sub> O 40.0

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
6	15	-

## Fusion Soluble Fe

Fusion Soluble Fe is a highly soluble ferrous sulphate powder. It contains 20% iron for the economic treatment of large areas of turf. Fusion Soluble Fe has been designed to dissolve quickly in water, and once applied to the turf the sulphur in Fusion Soluble Fe helps to temporarily reduce the pH levels in the soil.

- ▶ For use on tees, fairways and sports fields
- ▶ Produces dark green turf in all conditions
- ▶ Toughens sward for improved disease resistance
- ▶ Tank mix compatible with all other Fusion Soluble products

**Product Code:** IG050203

Approximate Longevity 2-4 weeks  
Cutting Height Any  
Guaranteed Analysis 20% Fe  
Pack Size 10 kg  
Pack Coverage 5,000m<sup>2</sup>

### Application Information

Application Rate 20 kg/ha  
Water Rate 300-600 lt/ha  
Method Sprayer

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
6	14	30

The use of wetting agents on turf surfaces has increased over the years as more research has led to a greater understanding of dry patch. Waxy residues from the breakdown of plant tissue, bicarbonate deposits from fertilisers and irrigation water coat the soil particles which block up pores. This leads to localised dry spot areas which can induce turf wilt and eventually death of the grass sward.

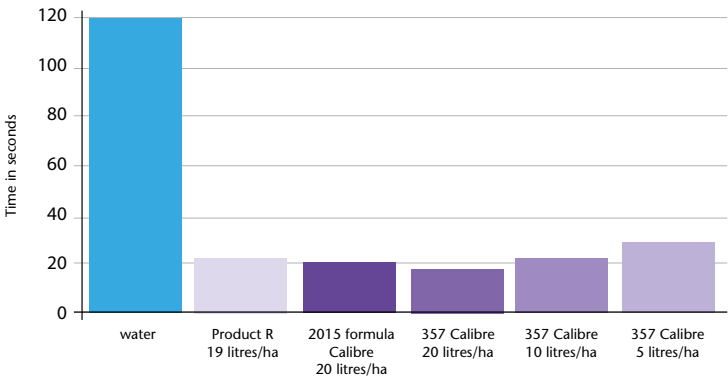
On the back of this research, Indigrow has developed Magnum, its own range of wetting agents. Magnum wetting agents can work in a number of ways. Curative wetting agents are designed to be applied to an existing hydrophobic condition, whilst preventative wetting agents are applied in the spring and repeated throughout the season help to hold moisture in these potentially hydrophobic areas. Penetrant wetting agents open up the soil profile and allow excessive water to drain away and dispersant products help prevent the build-up of dew.

Our Magnum wetting agent application programmes can be found on page 43.

### Improving Water Penetration with Magnum 357 Calibre

Tried and tested spreading agents ensure that the applied spray is evenly distributed across the surface of the turf and at the same time aids in penetration into the root zone. Improvements in penetration are significant when compared to untreated soils and Magnum 357 performs favourable to other products even at relatively low rates.

**Droplet Penetration Test**  
Average of 20 results



Product	App. Rate	Longevity	Pack Coverage	Pack Size	Code
Magnum 357 Calibre	10-20 lt/ha	4-8 weeks	5,000-10,000 m <sup>2</sup> 6-12 ha	10 lt 120 lt	IF020101 IF020102
Magnum CO	10-20 lt/ha	4-8 weeks	5,000-10,000 m <sup>2</sup>	10 lt	IF020103
Magnum Carbine	3 lt/ha	4 weeks	10,000 m <sup>2</sup>	3 lt	IF020106
Magnum Forty Four	20-40 lt/ha	2-4 weeks	2,500-5,000 m <sup>2</sup> 3-6 ha	10 lt 120 lt	IF020130 IF020131
Magnum Forty Four OneShot	2-4 sachets/ha	2-4 weeks	5-10 ha	20 sachets	IF020108
Magnum Granular	10 g/m <sup>2</sup>	4-6 weeks	1,000 m <sup>2</sup>	10 kg	IF020150
Magnum Recoil	10 lt/ha	2-4 weeks	10,000m <sup>2</sup>	10 lt	IF020110
Magnum Applicator Pellet	1 pellet /2,000-3,000m <sup>2</sup>	2-4 weeks	10,000 -15,000 m <sup>2</sup>	5 pellets	IF020201
Magnum Blaster Pellet	1 pellet in min. 2,500 lt water	8-12 weeks	-	1 pellet	IF020205
Magnum 345 Pellet Pro Applicator	-	-	-	Each	IF020401
Magnum 345 Pellet Pro Applicator Starter Pack	1 pellet /2,000-3,000m <sup>2</sup>	2-4 weeks	4-6 ha	20 pellets & 1 pellet applicator	IF020451



## Magnum 357 Calibre

Magnum 357 Calibre is a new technology advanced water management tool. Combining three different surfactant technologies it will provide even spreading over turf surface, efficient water penetration and water holding capacity through the use of reverse block co-polymers. Magnum 357 Calibre will regulate the moisture content to give more uniform moisture percentages across the turf surface, through the soil profile, holding water on a molecular level. Once the ideal 15-20% moisture content has been reached, 357 Calibre will ensure even water flow throughout the root zone, so preventing excess moisture build-up. It can be used in a targeted curative and preventative programme with Magnum CO.

- ▶ Holds water in root zone for longer to improve plant health
- ▶ Prevents dry patch
- ▶ Aerates soil
- ▶ Provides deeper roots and improves root mass
- ▶ Provides consistent plant health

**Product Code:** IF020101

Pack Size 10 lt  
Pack Coverage 5,000-10,000 m<sup>2</sup>

**Product Code:** IF020102

Pack Size 120 lt  
Pack Coverage 6-12 ha  
Approximate Longevity 4-8 weeks  
Cutting Height Any

### Application Information

Application Rate 10-20 lt/ha  
Water Rate 300-600 lt/ha  
Method Sprayer

## Magnum CO

Magnum CO is a new blend of ingredients designed to tackle the problems associated with localised dry spots and dry patch. Magnum CO contains an organic acid designed to clean the sand particle and flush unwanted waxes, hydrocarbons, bicarbonate salts and minerals through the soil profile.

- ▶ Curative wetting agent
- ▶ Opens soil to water and air penetration
- ▶ Designed for use with Magnum 357 Calibre as part of a targeted wetting agent programme (see page 43)

**Product Code:** IF020103

Approximate Longevity 4-8 weeks  
Cutting Height Any  
Pack Size 10 lt  
Pack Coverage 5,000-10,000m<sup>2</sup>

### Application Information

Application Rate 10-20 lt/ha  
Water Rate 300-600 lt/ha  
Method Sprayer

## Magnum Carbine

Magnum Carbine is a dual action wetting agent, which includes a patented surfactant formulation. It has been developed to reduce surface tension and help move water from the surface to the root zone, where water-absorbing polymers act to retain the water.

Magnum Carbine has been extensively trialed to prove it's effectiveness - for further information please visit our website or contact your sales representative.

- ▶ Increases efficiency of nutrient and fertiliser movement
- ▶ Increase volume of root system
- ▶ Aids in delaying the onset of disease
- ▶ A suggested application programme can be found on page 43

**Product Code:** IF020106

Approximate Longevity 4 weeks  
Cutting Height Any  
Pack Size 3 lt  
Pack Coverage 10,000m<sup>2</sup>

### Application Information

Application Rate 3 lt/ha  
Water Rate 300 lt/ha  
Method Sprayer





### Magnum Forty-Four

Magnum Forty-Four is an economic turf penetrant wetting agent ideally suited for opening the soil profile, maximising water penetration and dispersing excessive water away from the surface. Where excessive salts are a problem, it can also be used as part of a flushing program. Magnum Forty-four can be used in an autumn/winter targeted program to aid in the dispersal of heavy rainfall.

- ▶ Reduces excessive surface water
- ▶ Allows more efficient utilisation of irrigation or rainfall
- ▶ For use on large turf areas such as fairways and outfields
- ▶ Can be used in spray solutions to improve tank mix penetration

Product Code:	IF020130
Pack Size	10 lt
Pack Coverage	2,500-5,000 m <sup>2</sup>
Product Code:	IF020131
Pack Size	120 lt
Pack Coverage	3-6 ha
Approximate Longevity	2-4 weeks
Cutting Height	Any
<b>Application Information</b>	
Application Rate	20-40 lt/ha
Water Rate	300-600 lt/ha
Method	Sprayer

### Magnum Forty-Four OneShot

Magnum One Shot is a highly concentrated penetrant wetting agent designed to give economical yet superior turf wetting and water penetration on hydrophobic soils. It can be used to aid the spread and penetration of foliar fertilisers. Magnum One Shot is contained in a sachet for large scale economic use and tank mixing.

- ▶ For use on large areas such as fairways and outfields
- ▶ Use prior to rain to aid irrigation and water movement
- ▶ Sachet provides a no mess solution
- ▶ Environmentally friendly and biodegradable

Product Code:	IF020108
Approximate Longevity	2-4 weeks
Cutting Height	Any
Pack Size	20 sachets
Pack Coverage	5-10 ha
<b>Application Information</b>	
Application Rate	2-4 sachets/ha
Water Rate	300-600 lt/ha
Method	Sprayer





## Magnum Granular

Magnum Granular is an innovative spreadable wetting agent containing a blend of super surfactants for fast water penetration into localised dry spots and hydrophobic soil or thatch. Magnum Granular utilises Zeolite technology as a carrier. The micro-pores are infused with a new generation blend of super surfactants, giving preventative and curative activity. These surfactants help outperform conventional wetting agents by as much as 25 to 1. This product does not need to be watered in, but will only be activated with irrigation or rainfall.

- ▶ Designed for use in all fine turf environments
- ▶ Easy to apply
- ▶ Provides preventative and curative activity

**Product Code:** IF020150

Approximate Longevity	4-6 weeks
SGN/Particle Size	100
Cutting Height	>2mm
Pack Size	10 kg
Pack Coverage	1,000 m <sup>2</sup>

### Application Information

Application Rate	10 g/m <sup>2</sup>
Method	Spreader

## Magnum Recoil

Magnum Recoil is a dew dispersant. It contains a specific blend of adjuvants, spreading agents and oils which form a barrier on the leaf blade, helping to disperse dew. The longevity of Magnum Recoil is dependent on the rate of grass growth and frequency of cutting.

- ▶ Can be used as part of an organic fertiliser program
- ▶ Low application rates
- ▶ Usable on all amenity turf areas
- ▶ Applications will aid plant stress relief

**Product Code:** IF020110

Approximate Longevity	2-4 weeks
Cutting Height	Any
Pack Size	10 lt
Pack Coverage	10,000m <sup>2</sup>

### Application Information

Application Rate	10 lt/ha
Water Rate	100-200 lt/ha
Method	Sprayer





### Magnum Applicator Pellets

Magnum Applicator Pellets are designed to be used in the Magnum Pellet Pro Applicator or other suitable syringing equipment to spot treat hydrophobic soils, hot spots and dry patch. They are hand held, as a result they can be precisely targeted to overcome localised problems.

- ▶ Newly improved formulation for added effectiveness
- ▶ Environmentally friendly and biodegradable
- ▶ Highly concentrated formulation
- ▶ Ideal for syringing localised dry spots

**Product Code:** IF020201

Approximate Longevity 2-4 weeks  
Cutting Height Any  
Pack Size 5 pellets  
Pack Coverage 10,000-15,000m<sup>2</sup>

#### Application Information

Application Rate 1 pellet/2,000-3,000m<sup>2</sup>  
Water Rate N/A  
Method Pellet Pro Applicator

### Magnum Blaster Pellet

Magnum Blaster Pellets are designed for use in the storage tank or in irrigation systems and will improve water penetration into the turf. The surfactant package contained in the Blaster Pellet gives the added advantage of lubricating sprinkler heads.

- ▶ Wetting agent applied with every irrigation
- ▶ Environmentally friendly and biodegradable
- ▶ Highly concentrated formulation

**Product Code:** IF020205

Approximate Longevity 8-12 weeks  
Cutting Height Any  
Pack Size 1 pellet

#### Application Information

Application Rate 1 pellet  
Water Rate at least 2,500 lt  
Method Directly into irrigation tank

### Magnum 345 Pellet Pro Applicator

The Magnum 345 Pellet Pro Applicator has been designed to provide precise and controlled application of the Magnum Applicator Pellets. The Magnum 345 Pellet Pro Applicator comes complete with an integrated nozzle and fully controllable shut off valve.

- ▶ For applying wetting agent pellets
- ▶ Ideal for treating localised dry spots and hydrophobic soils

**Product Code:** IF020401

Pack Size Each

### Magnum 345 Starter Pack

The Magnum 345 Pellet Pro Applicator Starter Pack is a cost effective introductory pack for users new to applicator pellets, or those whose equipment needs replacing. The Starter Pack contains both a Magnum 345 Pellet Pro Applicator and four tubes of Magnum Applicator Pellets.

- ▶ For applying wetting agent pellets
- ▶ Ideal for treating localised dry spots and hydrophobic soils

**Product Code:** IF020451

Pack Size 1 Magnum 345 Pellet Pro Applicator & 4 tubes of Magnum Applicator Pellets

Wetting agent programmes are essential in achieving a reduction in dry patch and fairy ring outbreaks. Magnum 357 Calibre can be used on its own in the ideal preventative programme. If a curative approach is required, alternating Magnum CO and Magnum 357 Calibre helps to breakdown the waxy coating covering soil and sand particles. This process also helps with the re-wetting of the soil profile. This approach helps to eradicate plant stress, providing a more consistent playing surface. Please see our recommended programs for fine turf and outfield situations below:

#### Targeted Wetting Agent Programme for Greens & Tees: Preventative

Product	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Magnum 357 Calibre	20 lt/ha	10 lt/ha	10 lt/ha	10 lt/ha	10 lt/ha	10 lt/ha	10 lt/ha	80 lt/ha

#### Targeted Wetting Agent Programme for Greens & Tees: Curative

Product	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Magnum 357 Calibre	-	-	20 lt/ha	10 lt/ha	10 lt/ha	10 lt/ha	-	50 lt/ha
Magnum CO	-	20 lt/ha	-	-	-	-	20 lt/ha	40 lt/ha

#### Targeted Wetting Agent Programme: Fairways and Outfields

Product	Apr	May	Jun	Jul	Aug	Sep	Total
Magnum Forty Four OneShot	2-4 sachets/ha	-	2-4 sachets/ha	-	2-4 sachets/ha	-	6-12 sachets/ha
Magnum 357 Calibre	-	10 lt/ha	-	10 lt/ha	-	10 lt/ha	30 lt/ha

Fairy ring is caused by more than 60 basidiomycete fungi, including those producing the familiar puffballs and toadstools. The rings result from the activities of these fungi growing radially through the thatch or soil, rather than from a direct parasitic relationship with the turfgrass. Fairy ring occurs wherever grass is grown.

Type 1 - Rings that result in loss of turf at the outer margin of the ring.

Type 2 - Rings have outer margins that are darker green in colour than the surrounding turf. Fruiting bodies may or may not be found in association with Type 1 and 2 rings.

Type 3 - Rings exhibit a ring of fruiting bodies with no effect on the turf.

#### Wetting Agent Fairy Ring Control Programme: Magnum Carbine

Product	Apr	May	Jun	Jul	Aug	Sep	Total
Magnum Carbine	3 lt/ha 3 lt/ha	3 lt/ha	3 lt/ha	3 lt/ha	3 lt/ha	3 lt/ha	21 lt/ha

Spike before each application. Two applications should be made in April, two weeks apart.



The range of colourants offered by Indigrow includes a turf colourant, divot mix dye, aerosol paints and a lake colourant.

All of the colourants in our range will not damage turf, and are environmentally friendly. They have been developed to provide an aesthetically pleasing colour to turf when it is most needed.



Product	App. Rate	Pack Size	Code
<b>Optik SuperSeeker</b>	turf colourant: 10-20 lt/ha in 300-600 lt water per ha spray dye indicator: 150-200 ml in 100 lt water	10 lt	IG090325
<b>Optik SuperSeeker Divot Mix Dye</b>	75-100 kg in 10-15 tonnes of sand	20 kg	IG090320
<b>Upstream Black</b>	1 lt in 2,000 m <sup>3</sup> water	1 lt	IF030205
<b>Optik Line Marker Aerosol</b>	As required	750 ml White 750 ml Yellow 750 ml Red 750 ml Blue	IG060201 IG060202 IG060203 IG060204



## Optik SuperSeeker

SuperSeeker is a further development of our pigment technology combining both the high pigment content of Heatseeker and the unique binding and sticking capacity of Greenseeker. This product will give you the longevity and colouration of both the Heatseeker and Greenseeker without having to tankmix.

Through the darker green colour on the turf surface more UV light is absorbed meaning an increase in photosynthetic activity. In countries with a shorter playing season this can be very important. The added benefit is the aesthetic appearance of the turf is improved without high doses of Iron which can lead to desiccation in the winter.

Optik SuperSeeker can also act as a green spray dye indicator to help identify overlapping sprays, missed areas, sprays drift or blocked nozzles.

- ▶ Flexible application rates to suit all turf types
- ▶ Contains no hazardous or harmful ingredients
- ▶ Uniform, consistent, dark green colour
- ▶ Helps turf to absorb UV light energy

**Product Code:** IG090325

Approximate Longevity Up to 12 weeks  
Pack Size 10 lt  
Pack Coverage 5,000-10,000 m<sup>2</sup>

### Application Information

Application Rate turf colourant: 10-20 lt/ha  
spray dye indicator: 150-200 ml  
Water Rate turf colourant: 300-600 lt/ha  
spray dye indicator:  
100 lt spray solution  
Method Sprayer

## Optik SuperSeeker Divot Mix Dye

SuperSeeker Divot Mix Dye is a permanent colourant specifically formulated to impart a long-lasting green colour to sand when used as divot mix preparation. The flexible application rate allows the turf manager to accurately control the final colour of the divot mix, allowing it to be seamlessly incorporated with the surrounding area.

- ▶ Low application rate
- ▶ Flexible colour depending on requirements
- ▶ Suitable for use on all turf types
- ▶ Harmless to the environment

**Product Code:** IG090320

Approximate Longevity Up to 12 weeks  
Pack Size 20 kg  
Pack Coverage 2.5-3.3 tonnes (divot mix sand)

### Application Information

Application Rate 75-100 kg in 10-15 tonnes sand  
Water Rate N/A

## Optik Line Marker Aerosol

Optik Line Marker Aerosols are designed to mark out playing areas on turf and hard surfaces. They are available in four colours. Optik Line Marker will be dry to the touch in 20 minutes and fully cured within 24 hours. One can of paint will cover up to 100 metres of line, 2" wide.

- ▶ Available in four colours
- ▶ Turf friendly
- ▶ Can be used on turf and hard surfaces, including concrete, wood, metal, tarmac and artificial turf

**Product Code:** IG060201

Pack Size 750ml White

**Product Code:** IG060202

Pack Size 750ml Yellow

**Product Code:** IG060203

Pack Size 750ml Red

**Product Code:** IG060204

Pack Size 750ml Blue

## Upstream Black

Upstream Black is a concentrated easy to use aquatic colourant. Natural dyes darken the water and preclude sunlight from promoting re-growth of algae and weeds whilst giving a much improved aesthetic appearance. Applied at the surface, it rapidly disperses downwards to provide a natural black colour within minutes.

- ▶ Liquid formulation allows flexible application rates
- ▶ Slows algae growth

**Product Code:** IF030205

Approximate Longevity 2-4 weeks  
Pack Size 1 lt  
Pack Coverage 2,000m<sup>3</sup>

### Application Information

Application Rate 1 lt  
Water Rate 2,000m<sup>3</sup>  
Method N/A

Indigrow has developed a range of spraying aids to help turf managers with difficult to spray chemicals and to maintain the functionality of their turf across many sports.

Optik spray pattern indicators help highlight overlapping sprays, missed areas, spray drift and blocked nozzles. These spray pattern indicators can be essential in ensuring the correct quantity of fertiliser or pesticide is applied.

The spraying aids in the Optik range have been developed to improve chemical penetration, provide a foaming and anti-foam option, as well as providing an environmentally friendly chemical tank cleaner.



Product	App. Rate	Pack Size	Code
<b>Optik Blue</b>	125-250 ml in 100 lt spray solution	10 lt	IG060101
<b>Optik SuperSeeker</b>	spray dye indicator: 150-200 ml in 100 lt water	10 lt	IG090325
<b>Optik Blue OneShot</b>	1 sachet in 100 lt water	20 sachets	IG060111
<b>Optik Anti-Foam</b>	15-75 ml in 200 lt spray solution	1 lt	IG060171
<b>Optik Foam Bout Marker</b>	1% of total spray solution	2.5 lt	IG060175
<b>Optik Isolator OneShot</b>	2-4 sachets in 300 lt water	20 sachets	IG060179
<b>Optik Tank Cleaner</b>	1 lt in 200 lt water	5 lt	IG060177

## Optik Blue (Spray Dye Indicator)

Recently reformulated to include an increased concentration of dye, Optik Plus is an enhanced spray pattern indicator designed to highlight and help eliminate overlapping sprays, missed areas, spray drift or blocked nozzles. It may also be used for marking out temporary greens. Optik spray pattern dyes will remain visible for 24 - 48 hours, after which they will gradually fade depending on light intensity and/or rainfall.

- ▶ Reduces the pH of spraying water, protecting pesticides from losing activity
- ▶ Surfactants help spread the droplets on the leaf surface
- ▶ Complexing agent to reduce the staining effect of the dye
- ▶ Anti-drift component to reduce chemical trespass

**Product Code:** IG060101

**Approximate Longevity** 24-48 hours

**Pack Size** 10 lt

### Application Information

**Application Rate** 125-250 ml

**Water Rate** 100 lt

**Method** Sprayer

Adding 250ml of Optik Plus to 100 litres of spraying water with a starting pH of 7.6 will reduce it to approx. pH 4.5.

## Optik Blue OneShot

Optik Blue OneShot is an enhanced spray pattern dye designed to highlight and help eliminate overlapping sprays, missed areas, spray drift or blocked nozzles. It may also be used for marking out temporary greens. Optik Blue OneShot will remain visible for 24 - 48 hours, after which they will gradually fade depending on light intensity and/or rainfall.

- ▶ Fades rapidly after 24-48 hours
- ▶ Highlights sprayed areas, eliminating any overlapping
- ▶ Complexing agent to reduce the staining effect of the dye
- ▶ Fully tank mixable with a wide range of fungicides and herbicides

**Product Code:** IG060111

**Approximate Longevity** 24-48 hours

**Pack Size** 20 sachets

**Pack Coverage** 5-10 Ha

### Application Information

**Application Rate** 1 sachet

**Water Rate** 100 lt

**Method** Sprayer

## Optik SuperSeeker

SuperSeeker is a further development of our pigment technology combining both the high pigment content of Heatseeker and the unique binding and sticking capacity of Greenseeker. This product will give you the longevity and colouration of both the Heatseeker and Greenseeker without having to tankmix.

Through the darker green colour on the turf surface more UV light is absorbed meaning an increase in photosynthetic activity. In countries with a shorter playing season this can be very important. The added benefit is the aesthetic appearance of the turf is improved without high doses of Iron which can lead to desiccation in the winter.

Optik SuperSeeker can also act as a green spray dye indicator to help identify overlapping sprays, missed areas, sprays drift or blocked nozzles.

- ▶ Flexible application rates to suit all turf types
- ▶ Contains no hazardous or harmful ingredients
- ▶ Uniform, consistent, dark green colour
- ▶ Helps turf to absorb UV light energy

**Product Code:** IG090325

**Approximate Longevity** Up to 12 weeks

**Pack Size** 10 lt

**Pack Coverage** 5,000-10,000 m<sup>2</sup>

### Application Information

**Application Rate** turf colourant: 10-20 lt/ha  
spray dye indicator: 150-200 ml

**Water Rate** turf colourant: 300-600 lt/ha  
spray dye indicator:  
100 lt spray solution

**Method** Sprayer







### Optik Anti-Foam

Optik Anti-Foam is a silicone based anti-foam and de-foaming agent. Optik Anti-Foam should ideally be added to the spray tank before a pesticide or product which is known to foam. Alternatively, if foaming is already present in the tank, Optik Anti-Foam can be added with agitation for the foam to be quickly quelled.

- ▶ Helps to prevent the initial build-up of foam
- ▶ Also acts as a de-foamer
- ▶ Contains 16% dimethylpolysiloxane

Product Code:	IG060171
Approximate Longevity	N/A
Pack Size	1 lt
Application Information	
Application Rate	15-75 ml
Water Rate	200 lt
Method	Sprayer

### Optik Foam Bout Marker

Optik Foam Bout Marker produces a high quality, thick-bodied long lasting foam. The foam produced is deposited on the ground in large blobs rather than in narrow streaks. The size of the foam blobs is dependent on the pressure and diameter of the boom and end drop hoses.

- ▶ Can be used with all water types

Product Code:	IG060175
Approximate Longevity	N/A
Pack Size	2.5 lt
Application Information	
Application Rate	1%
Water Rate	N/A
Method	Sprayer



## Optik Isolator OneShot

Optik Isolator OneShot is a multi-functional spraying aid designed to reduce pH, improve mixing and compatibility in the tank. The formulation enhances the efficacy of foliar applied fertilisers by giving optimum spray tank stability, accurate application and improved plant uptake and active ingredient translocation. It is a cost effective water treatment additive containing complexed acidifiers to reduce pH and bicarbonates. It should be used as a spray tank buffer for high pH and high alkalinity water.

- ▶ Complexed acidifiers to reduce pH and hydrolysis
- ▶ A long chain polymer based water softener with low foaming formulation
- ▶ A sequestering agent to isolate Cationic contaminants
- ▶ Buffering agents to improve tank mixing compatibility

**Product Code:** IG060179

**Pack Size** 20 sachets  
**Pack Coverage** 5-10 ha

### Application Information

**Application Rate** 2-4 sachets  
**Water Rate** 300 lt  
**Method** Sprayer

Typically, for water at a starting pH of 7.8, the addition of 2-4 sachets ml per 300 lt of spray tank water will reduce the pH to approximately pH 5.5. The amount required will depend on a number of factors including the starting pH, the hardness of the water and the desired finishing pH.

## Optik Tank Cleaner

Tank Cleaner is specially formulated to remove pesticide deposits and other debris, including oily substances, from tanks, hoses, booms, filters, screens and nozzles. Tank Cleaner was developed to handle difficult to clean agricultural chemicals, including sulfonylurea herbicides and sticky formulations.

- ▶ Removes deposits and other debris from tanks, hoses, filters, screens and nozzles
- ▶ Non-hazardous – will not corrode equipment
- ▶ Harmless to turf grass and the environment

**Product Code:** IG060177

**Pack Size** 5 lt

### Application Information

**Application Rate** 1 lt  
**Water Rate** 200 lt  
**Method** Directly into spray tank



## Fungicides & Biocides

Plant Protection Products have become more prevalent in recent years as amenity turf managers have increased their aesthetic aspirations. As a result, we have developed a selection of Plant Protection Products designed to help control a wide range of weeds in managed amenity situations. Indigrow's Plant Protection Products are some of the newest additions to our product range and are designed to treat a variety of turf problems.

The demand for the latest technologies to fight disease, and other turf issues requires us to constantly develop our range. The latest editions and changes can always be found on our website: [www.indigrow.com](http://www.indigrow.com)

**IMPORTANT: Please use plant protection products safely. Always read the label and product information before use.**

Product	Registration No.	App. Rate	Longevity	Pack Coverage	Pack Size	Code
<b>Bestow</b>	MAPP 17185	1 lt/ha	4 weeks	5,000 m <sup>2</sup>	500 ml	IG070301
<b>Opal Green</b>	HSE 9114	50 lt/ha	4 weeks	1,000 m <sup>2</sup>	5 lt	IG070101

### Bestow (Turf Fungicide)

Bestow is both a systemic and contact fungicide, developed to cure and prevent a variety of diseases on managed amenity turf. Bestow has a low application rate and is rainfast within one hour, making it an ideal fungicide for all year round use, particularly in the autumn and winter months.

- ▶ For use on golf courses, sports fields, bowling greens and cricket pitches as well as on lawns and in parks
- ▶ Designed to cure and/or prevent: Anthracnose, Dollar Spot, Fusarium Patch, Leaf Spot, Red Thread and Rust
- ▶ Can be used in low temperatures as long as the turf is not frozen

Product Code:	IG070301
Approximate Longevity	4 weeks
MAPP Number	MAPP 17185
Active Ingredients	tebuconazole (200 g/l) trifloxystrobin (100 g/l)
Pack Size	500 ml
Pack Coverage	5,000 m <sup>2</sup>

#### Application Information

Application Rate	1 lt/ha
Water Rate	400-500 lt/ha
Method	Sprayer

#### Suggested soil temperatures for application

minimum °C	optimum °C	maximum °C
8	15+	28

### Opal Green

Opal Green is based around a blend of organic acids, biocides and surfactants. When applied to the surface, the surfactants allow the acid and biocide to spread and penetrate. The acid then kills the algae, moulds and fungi directly by burning. For more permeable surfaces such as artificial turf a higher water rate of 1,000 lt/ha should be used.

- ▶ Hard surface weed control
- ▶ Use on concrete, asphalt, tarmac, paving, artificial surfaces
- ▶ Effective for use on algae, moulds and fungi

Product Code:	IG070101
Approximate Longevity	4 weeks
HSE Number	9114
Active Ingredients	Alkyl (C12 - C14), Dimethyl Benzylammonium Chloride (4.5%)
Pack Size	5 lt
Pack Coverage	1,000 m <sup>2</sup>

#### Application Information

Further Application Information:	Apply using surface spray, or with brush or mop Make new solution daily
Application Rate	50 lt/ha
Water Rate	500 lt/ha
Method	Sprayer





### Rubber Mats

The Rubber Mats from Indigrow have been developed to go under turf to support the weight of extra movement over the surface. The Rubber Mats allow grass to grow through, without costly ground work. They offer shock and noise absorption, whilst being weather resistant and help to minimise water build up. They are also wheelchair friendly.

Ideal for:

- ▶ Tee support mats
- ▶ Pathway supports
- ▶ Erosion protection
- ▶ Flooring for wash bays

Product Code: IG109101

Pack Size Each

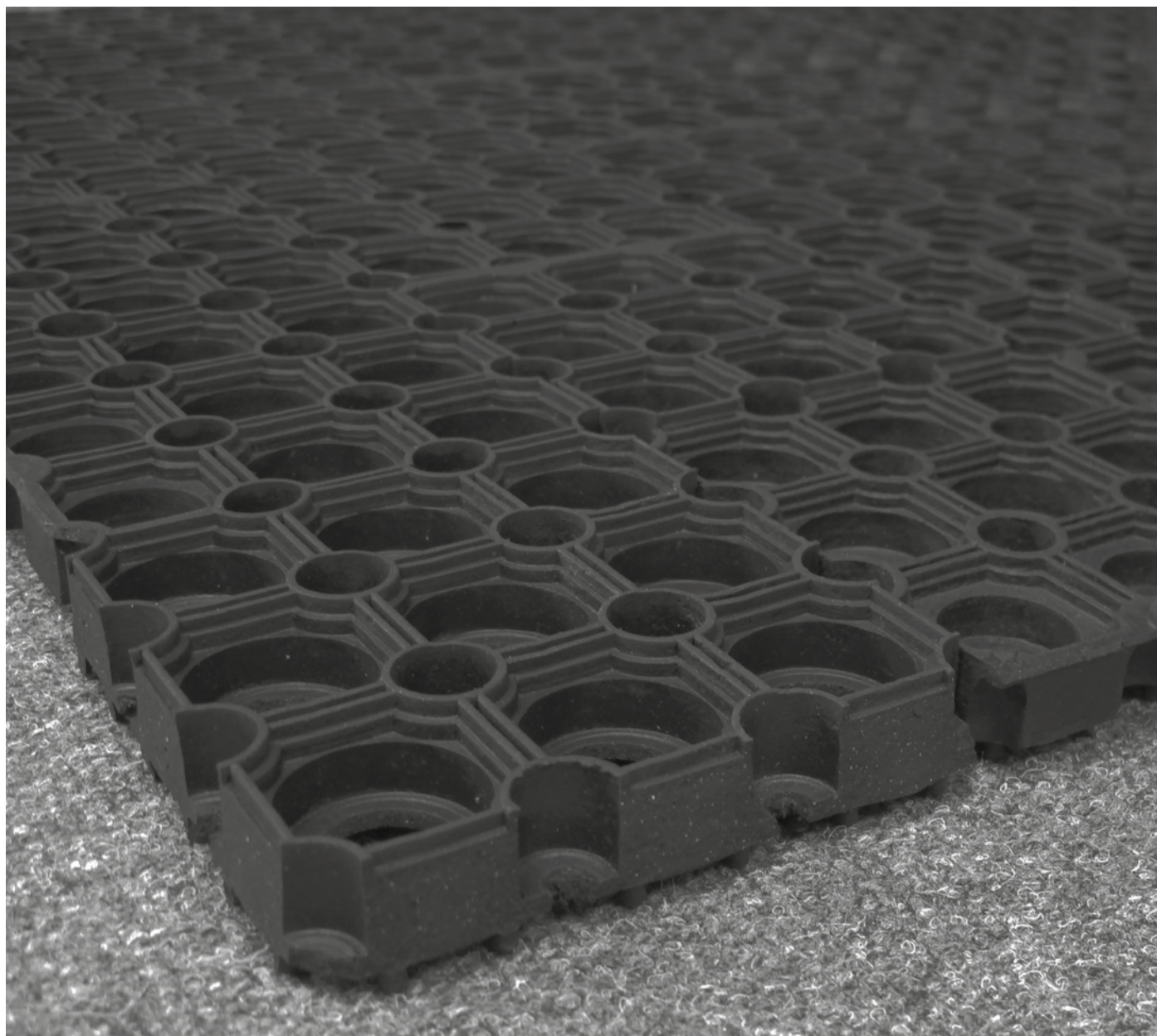
Pack Coverage 1.5 x 1.0 m

#### Application Information

Application Information Lay the rubber mat, topdress and overseed

Indigrow has begun to develop a Specialist Product range to provide our customers with a simple solution to common turf management issues.

This range is detached from Indigrow's main target area, but helps us to enhance the Indigrow brand that our customers know so well. Our Specialist Products range will be developed over the years to come, for the latest information on these products, please visit our website: [www.indigrow.com](http://www.indigrow.com).





## Indigrow Analysis Service

### Soil Analysis Service

To understand the nutritional status of the soil it is important that regular soil samples are taken which will highlight the inherent fertility and also see if current fertiliser practice is, over time, altering the base level of nutrients. The other factor to take into account is the soil pH. Not only do different species tolerate different pH levels but nutrient availability is also linked to pH.

Early spring is the best time to sample as a programme of fertiliser application for the whole season can then be formulated by your Indigrow representative. Where problems are seen, samples can be taken at any time of year.

### Analysis Service

To ensure accurate, impartial results Indigrow have retained the services of The Sports Turf Research Institute (STRI, Bingley) to undertake our analysis in their laboratory. A wide range of analyses and tests are offered.

The Soil Analysis kits contain instructions on how to take samples, plastic bags to put the samples in, relevant forms to record what type of sample and where it is from and a postage paid envelope (UK only) to send samples direct to the STRI. The STRI has a licence from the UK authorities to import and analyse samples from outside the UK, but in these cases the cost of carriage has to be paid. All soil samples are chargeable.

To complete an effective soil analysis test, ensure you read the pack instructions carefully, make sure your equipment is clean and dry, number and clearly label all your samples and complete all the paperwork and return them as instructed in the pack. Do not sample directly after applying fertiliser.

### Annual Fertiliser Programmes

From the results of analysis and in consultation with the greenkeeper or groundsman, we are able to produce a comprehensive annual fertiliser programme which calculates all costs and nutrient inputs.

### Basic Soil Analysis

This basic analysis provides accurate results on the main limiting factors to quality turf. This includes the macro-nutrients, along with soil pH. From these basic results, several recommendations can be made to help turf managers improve their playing surfaces.

Product Code: IG020901

pH, P, K, Mg, Ca and soil textural class

### Comprehensive Soil Analysis

Comprising all of the tests from the basic analysis, along with testing for multiple micro-nutrients, sulphates and more, the comprehensive analysis provides accurate results on almost all limiting factors to quality turf. These results allow highly accurate and detailed recommendations to be made to help turf managers improve their playing surfaces.

Product Code: IG020902

pH, P, K, Mg, Ca and soil textural class  
Available Na, Cu, Zn, Mn, Fe, Sulphate, Conductivity,  
Exchangeable Cations with CEC, Organic matter

### Particle Size Analysis

A test to help determine the sizes of different soil components, including clay, silt and sand. This test can be used to help recommend top dressings and improve soil management.

Product Code: -

Particle size analysis

Includes organic matter and textural classification



## Organic Matter Testing

Organic matter is important for soils, but too much in the wrong place can cause problems such as disease outbreak and too much water retention. The organic matter test determines the correct balance for your sports turf area and can help to find a solution to any problems.

Product Code: -

Organic matter content of soils or rootzones

Tested by loss on ignition

## Basic Water Testing

This basic water test helps identify the main limiting factors of irrigation water. Interpretation of the results can help to recommend which suitable fertilisers and wetting agents to use to get the greatest effect.

Product Code: -

Basic suitability for use in irrigation

pH, alkalinity and conductivity

## Organic Matter Testing - 4 depths

Organic matter is important for soils, but too much in the wrong place can cause problems such as disease outbreak and too much water retention. The organic matter test at four different depths helps determine the correct balance for your sports turf area and can help to find a solution.

Product Code: -

Organic matter content of soils or rootzones from intact cores

Tested at 4 depths (0-20mm, 20-40mm, 40-60mm and 60-80mm)

Tested by loss on ignition

## Comprehensive Water Testing

The more comprehensive test can help to identify a range of nutrients present in irrigation water. In turn, recommendations can be made to help eradicate application problems as well as other turf issues arising from poorer quality irrigation water.

Product Code: -

Suitability for use in irrigation

pH, alkalinity and conductivity

Bicarbonate, sodium, calcium and sulphate



## Compatibility Chart



	Bestow	Compass BioActive	Compass BioActive OneShot	Compass BioComplete	Fusion BioGreen High N	Fusion BioGreen NPK	Fusion BioGreen NK	Fusion Liquid Fe	Fusion Soluble Fe	Fusion Soluble High K	Fusion Soluble N	Fusion Soluble NPK	Fusion Tracer OneShot	Impact Humik OneShot	Magnum 357 Calibre	Magnum Blaster Pellet	Magnum Carbine	Magnum CO	Magnum Forty Four	Magnum Forty Four OneShot
Bestow																				
Compass BioActive																				
Compass BioActive OneShot																				
Compass BioComplete																				
Fusion BioGreen High N																				
Fusion BioGreen NPK																				
Fusion BioGreen NK																				
Fusion Liquid Fe																				
Fusion Soluble Fe																				
Fusion Soluble High K																				
Fusion Soluble N																				
Fusion Soluble NPK																				
Fusion Tracer OneShot																				
Impact Humik OneShot																				
Magnum 357 Calibre																				
Magnum Blaster Pellet																				
Magnum Carbine																				
Magnum CO																				
Magnum Forty Four																				
Magnum Forty Four OneShot																				
Magnum Recoil																				
Opal Green																				
Optik Anti-Foam																				
Optik Blue OneShot																				
Optik Blue Spray Dye																				
Optik Foam Bout Marker																				
Optik Isolator OneShot																				
Optik SuperSeeker																				
Optik Tank Cleaner																				
Solar C																				
Solar Ca+Mg																				
Solar Fe																				
Solar K																				
Solar N																				
Solar PK																				
Solar ProActive																				
Solar ProActive OneShot																				
Turbine Reaction OneShot																				
Vector 9 Iron																				



	Magnum Recoil	Opal Green	Optik Anti-Foam	Optik Blue OneShot	Optik Blue Spray Dye	Optik Foam Bout Marker	Optik Isolator OneShot	Optik SuperSeeker	Optik Tank Cleaner	Solar C	Solar Ca+Mg	Solar Fe	Solar K	Solar N	Solar PK	Solar ProActive	Solar ProActive OneShot	Turbine Reaction OneShot	Vector 9 Iron
Bestow																			
Compass BioActive																			
Compass BioActive OneShot																			
Compass BioComplete																			
Fusion BioGreen High N																			
Fusion BioGreen NPK																			
Fusion BioGreen NK																			
Fusion Liquid Fe																			
Fusion Soluble Fe																			
Fusion Soluble Higk K																			
Fusion Soluble N																			
Fusion Soluble NPK																			
Fusion Tracer OneShot																			
Impact Humik OneShot																			
Magnum 357 Calibre																			
Magnum Blaster Pellet																			
Magnum Carbine																			
Magnum CO																			
Magnum Forty Four																			
Magnum Forty Four OneShot																			
Magnum Recoil																			
Opal Green																			
Optik Anti-Foam																			
Optik Blue OneShot																			
Optik Blue Spray Dye																			
Optik Foam Bout Marker																			
Optik Isolator OneShot																			
Optik SuperSeeker																			
Optik Tank Cleaner																			
Solar C																			
Solar Ca+Mg																			
Solar Fe																			
Solar K																			
Solar N																			
Solar PK																			
Solar ProActive																			
Solar ProActive OneShot																			
Turbine Reaction OneShot																			
Vector 9 Iron																			

Note: 'Declared Nutrients' are those written on the bag/label - the 'Undeclared' are present in the product but not specified. All liquids are expressed as w/v % analysis.

Product	Declared Nutrients (%)														
	Total N	Ureic N	Methylene Urea N	Coated Urea N	Ammonia N	Nitrate N	Organic N	Total P <sub>2</sub> O <sub>5</sub>	Total P	Total K <sub>2</sub> O	Total K	MgO	Mg	CaO	Ca
<b>Fine Turf Fertilisers</b>															
Impact Accelerate 14-0-12	14.0				14.0					12.0	10.0				
Impact Vitalize 16-5-16	16.0	11.4			4.6			5.0	2.2	16.0	11.6	2.0	1.6		
Impact Summer Perk 14-0-4	14.0	4.9			9.1					4.0	3.2				
Impact Emerge 10-20-10	10.0				10.0			20.0	8.8	10.0	8.3	2.0	1.6		
Impact Perk 4-0-14 +10% Fe	4.0	2.0			2.0					14.0	11.6				
Fusion Granular Fe	2.0				2.0					10.0	8.3				
Impact All Round 5-5-15	5.0				5.0			5.0	2.2	15.0	12.5	3.0	1.8		
Impact High K 0-0-50										50.0	41.5				
Impact Enhance 37% CaO														37.0	26.5
Impact Spectrum												5.0	3.0		
<b>Outfield Fertilisers</b>															
Impact Humik N25	25.0	9.0			15.7	0.3									
Impact Humik NPK 5-2-1	5.0							2.0	1.3	1.0	0.8				
<b>Slow Release Fertilisers</b>															
Impact SRF 19-5-19	19.0	5.2	13.8					5.0	2.2	19.0	15.6				
Impact SRF 12-0-24	12.0	2.0	9.0		1.0					24.0	19.9				
<b>Controlled Release Fertilisers</b>															
Impact CGF 15-5-15	15.0	8.7		3.0	3.3			5.0	2.2	15.0	12.5			12.6	9.0
Impact CGF 25-5-10	25.0	13.4		10.4	1.2			5.0	2.2	10.0	8.3	2.0	1.6		
Impact CGF 16-5-26	16.0	8.3		6.4	1.3			5.0	2.2	26.0	21.6	2.0	1.6		
Impact CGF 26-5-8	26.0	9.2		15.6	1.2			5.0	2.2	8.0	6.6	2.0	1.6		
Impact CGF 28-8-8	28.0	1.7		26.1	1.9			8.0	3.4	8.0	6.6				
<b>Organic Fertilisers</b>															
Impact Organic 14-2-8	14.0	6.0	2.9		2.6		2.5	2.0	0.9	8.0	6.6	0.5	0.3		
<b>Foliar Fertilisers</b>															
N	19.3	18.4			1.0			3.3	1.4	3.2	2.7				
K										9.5	7.9				
PK	4.2				4.2			43.2	18.6	19.2	15.9				
C	11.0	11.0						7.3	3.1	7.3	6.1				
Fe										5.0	4.2				
Ca+Mg												4.1	2.5	8.2	5.9
ProActive (& OneShot)	4.2				4.5			43.2	18.6	19.2	15.9				
<b>Conventional Liquid Fertilisers</b>															
Fusion High N 28-0-0	28.0	14.0			7.0	7.0									
Fusion NPK 18-9-9	18.0	15.4			2.6			9.0	3.9	9.0	7.5				
Fusion NK 15-0-12	15.0	15.0								12.0	10.0				
<b>Soluble Fertilisers</b>															
Fusion Tracer OneShot															
Fusion Soluble N	46.0	46.0													
Fusion Soluble NPK	32.0	27.0			1.9	2.9		5.0	2.2	10.0	8.3				
Fusion Soluble High K	13.0					13.0				46.0	38.2				
<b>Biostimulants &amp; Seaweeds</b>															
Compass Bio-Complete															
Compass BioActive															
Impact Humik OneShot										8.0	6.6				
Turbine Reaction OneShot															
Compass BioActive OneShot															
Compass Composted Seaweed	2.0						2.0	2.0	1.3	1.0	0.8				
Compass Granular 4-0-0 + Ca	4.0	4.0										2.0	1.6	30.0	21.4
<b>Iron Products</b>															
Fusion Liquid Fe															
Vector 9 Iron															
Fusion Soluble Fe															



Product	Declared Nutrients (%)									Undeclared Nutrients (ppm)							
	SO <sub>3</sub>	S	Fe	B	Cu	Mn	Zn	Mo	SiO <sub>2</sub>	CaO	Ca	B	Cu	Fe	Mn	Zn	Mo
<b>Fine Turf Fertilisers</b>																	
Impact Accelerate 14-0-12	45.0	18.0															
Impact Vitalize 16-5-16	27.9	11.2															
Impact Summer Perk 14-0-4	30.0	12.0	6.0														
Impact Emerge 10-20-10	37.5	15.0															
Impact Perk 4-0-14 +10% Fe			10.0			1.0											
Fusion Granular Fe	4.5	1.8	9.0														
Impact All Round 5-5-15			4.0														
Impact High K 0-0-50	45.0	18.0															
Impact Enhance 37% CaO	53.0	21.2															
Impact Spectrum	13.8	5.5	15.0		0.5	8.0	1.5			9.0	6.4						
<b>Outfield Fertilisers</b>																	
Impact Humik N25																	
Impact Humik NPK 5-2-1																	
<b>Slow Release Fertilisers</b>																	
Impact SRF 19-5-19	28.8	11.5											10	200	80		
Impact SRF 12-0-24													10	200	80		
<b>Controlled Release Fertilisers</b>																	
Impact CGF 15-5-15																	
Impact CGF 25-5-10																	
Impact CGF 16-5-26																	
Impact CGF 26-5-8																	
Impact CGF 28-8-8																	
<b>Organic Fertilisers</b>																	
Impact Organic 14-2-8			1.0														
<b>Foliar Fertilisers</b>																	
N	1.5	0.6	1.0									45	85	165	45	30	1.5
K												45	85	165	45	30	1.5
PK			0.4									45	85	165	45	30	1.5
C	0.3	0.1	0.2									45	85	165	45	30	1.5
Fe			4.6									45	85		45	30	1.5
Ca+Mg	0.3	0.1										45	85	165	45	30	1.5
ProActive (& OneShot)																	
<b>Conventional Liquid Fertilisers</b>																	
Fusion High N 28-0-0												45	85	165	45	30	1.5
Fusion NPK 18-9-9												45	85	165	45	30	1.5
Fusion NK 15-0-12												45	85	165	45	30	1.5
<b>Soluble Fertilisers</b>																	
Fusion Tracer OneShot			8.4	0.9	0.2	1.8	1.2	0.2									
Fusion Soluble N												45	85	165	45	30	1.5
Fusion Soluble NPK												45	85	165	45	30	1.5
Fusion Soluble High K												45	85	165	45	30	1.5
<b>Biostimulants &amp; Seaweeds</b>																	
Compass Bio-Complete	4.3	1.7	3.3														
Compass BioActive																	
Impact Humik OneShot																	
Turbine Reaction OneShot																	
Compass BioActive OneShot																	
Compass Composted Seaweed																	
Compass Granular 4-0-0 + Ca												306	13.5		432	13.5	
<b>Iron Products</b>																	
Fusion Liquid Fe			6.5														
Vector 9 Iron			9.0														
Fusion Soluble Fe	28.6	11.5	20.0														

## NPK Nutrient Input Guide

It is important to know how much actual nutrient is being applied when planning accurate turf fertiliser input. Detailed below are the calculations, with examples, for granular, soluble and liquid fertilisers.

### Granular Fertilisers

To calculate the kg of nutrient applied per hectare:

$$\frac{\text{Application rate in g per m}^2 \times \% \text{ nutrient content}}{10}$$

#### Example

An application of Impact 6-5-18 Fine Turf Fertiliser applied at 25 g per m<sup>2</sup>

$$25 \times 6 \div 10 = 15 \text{ kg/ha Nitrogen (N)}$$

$$25 \times 5 \div 10 = 12.5 \text{ kg/ha Phosphate (P}_2\text{O}_5\text{)}$$

$$25 \times 18 \div 10 = 45 \text{ kg/ha Potash (K}_2\text{O)}$$

### Soluble Fertilisers

To calculate the kg of nutrient applied per hectare:

$$\frac{\text{Application rate in kg per Ha} \times \% \text{ nutrient content}}{10}$$

#### Example

An application of Fusion Soluble 20-7-20 applied at 10 kg per ha.

$$10 \times 20 \div 100 = 2 \text{ kg/ha Nitrogen (N)}$$

$$10 \times 7 \div 100 = 0.7 \text{ kg/ha Phosphate (P}_2\text{O}_5\text{)}$$

$$10 \times 20 \div 100 = 2 \text{ kg/ha Potash (K}_2\text{O)}$$

### Liquid Fertilisers

Historically, to calculate the amount of nutrient applied by a liquid it was necessary to know the specific gravity. Now all Indigrow liquids are labelled with the nutrient content by volume so it becomes just a straight forward multiplication, the same as for soluble fertilisers.

To calculate the kg of nutrient applied per hectare:

$$\frac{\text{Application rate in lt per Ha} \times \% \text{ w/v nutrient}}{100}$$

#### Example

An application of Fusion BioGreen 18-9-9 applied at 40 litres per ha.

$$40 \times 18 \div 100 = 7.2 \text{ kg/ha Nitrogen (N)}$$

$$40 \times 9 \div 100 = 3.6 \text{ kg/ha Phosphate (P}_2\text{O}_5\text{)}$$

$$40 \times 9 \div 100 = 3.6 \text{ kg/ha Potash (K}_2\text{O)}$$

### Conversion Factors

Different countries adopt different ways of expressing nutrients - either the oxide form (e.g. P<sub>2</sub>O<sub>5</sub>) or elemental (e.g. P)

**All Indigrow products carry dual labelling**

P<sub>2</sub>O<sub>5</sub> convert to P = x 0.43

K<sub>2</sub>O convert to K = x 0.83

CaO convert to Ca = x 0.72

MgO convert to Mg = x 0.6

SO<sub>3</sub> convert to S = x 0.4

P convert to P<sub>2</sub>O<sub>5</sub> = x 2.29

K convert to K<sub>2</sub>O = x 1.2

Ca convert to CaO = x 1.4

Mg convert to MgO = x 1.6

S convert to SO<sub>3</sub> = x 2.5

## Index

All of our products are listed below with a page reference to help you find them more easily.

Bestow	50	Magnum CO	39
Compass Bio-Active	33	Magnum Forty-Four	40
Compass Bio-Active OneShot	34	Magnum Forty-Four OneShot	40
Compass Bio-Complete	33	Magnum Granular	41
Compass Composted Seaweed	34	Magnum Recoil	41
Compass Granular 4-0-0 + 30 Ca	34	OneShot Mixers	30
Fusion BioGreen High 'N' 28-0-0	24	Opal Green	50
Fusion BioGreen 'NK' 15-0-12	25	Optik Anti-Foam	48
Fusion BioGreen 'NPK' 18-9-9	24	Optik Blue Aerosol	45
Fusion Granular Fe	6	Optik Blue Spray Dye Indicator	47
Fusion Liquid Fe	37	Optik Blue Spray Dye OneShot	47
Fusion Soluble Fe	37	Optik Foam Bout Marker	48
Fusion Soluble High K	27	Optik Isolator OneShot	49
Fusion Soluble N	27	Optik Red Aerosol	45
Fusion Soluble NPK	27	Optik SuperSeeker Divot Mix Powder	45
Fusion Tracer OneShot	27	Optik SuperSeeker Liquid	45
Impact Accelerate 14-0-12	5	Optik Tank Cleaner	49
Impact All Round 5-5-15	7	Optik White Aerosol	45
Impact CGF 15-5-15	13	Optik Yellow Aerosol	45
Impact CGF 16-5-26	14	Rubber Ring IndiMat	51
Impact CGF 25-5-10	13	Solar C	20
Impact CGF 26-5-8	14	Solar Ca + Mg	21
Impact CGF 28-8-8	15	Solar Fe	20
Impact Emerge 10-20-10	5	Solar K	19
Impact Enhance 37% CaO	7	Solar N	19
Impact High 'K' 0-0-50	7	Solar PK	20
Impact Humik 25 CGF 25-0-0	9	Solar Pro-Active	21
Impact Humik NPK CGF 5-2-1	9	Solar Pro-Active OneShot	21
Impact Humik OneShot	33	Turbine Reaction OneShot	33
Impact Organic Fine 14-2-8	17	UpStream Black	45
Impact Organic Medium 14-2-8	17	Vector Liquid 9 Iron	37
Impact Perk 4-0-14 + 10% Fe	6		
Impact Spectrum	7		
Impact SRF 12-0-24	11		
Impact SRF 19-5-19	11		
Impact Summer Perk 14-0-4 + 6% Fe	5		
Impact Vitalize 16-5-16	5		
Magnum 345 Pellet Pro Applicator	42		
Magnum 345 Starter Pack	42		
Magnum 357 Calibre	39		
Magnum Applicator Pellets	42		
Magnum Blaster Pellet	42		
Magnum Carbine	39		





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