

“making irrigation water great for grass”

APPLICATION GUIDE

The standard application rate for Quadrop is 200ml/1,000 litres (0.2litres/m³) of irrigation water. There are five formulations available depending on the characteristics of the irrigation water to be treated. Quadrop may be applied in any of the following ways:

1. Manually add Quadrop to your irrigation water holding tank
2. Dose Quadrop through an existing chemical injection system (e.g. Stranrol 360)
3. Install the complete Quadrop Injection System for automated water treatment



18 litre drums



1,000 litre IBCs



Pump-off deliveries

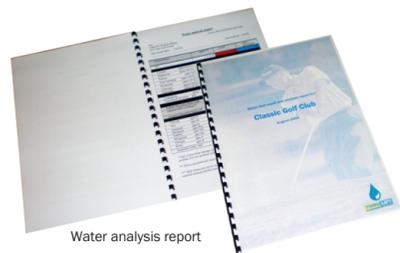
WATER ANALYSIS & FORMULATIONS

Your Quadrop representative is able to do an on-the-spot water check to determine if there is a need to treat your irrigation water. The results of the “drop test” will identify the degree of the problem and which Quadrop formulation will be suitable at the site.

Following this initial assessment the full water analysis can be completed and a report with recommendations produced for your consideration.

Formulations:

- FS - 10+ drops (bicarbonate alkalinity 300+ppm)
- FA - 10 drops (250ppm)
- FB - 8 drops (200ppm)
- FC - 6 drops (150ppm)
- FD - 4 drops (100ppm)



Water analysis report

Each formulation contains the additive MCDS, plus mineral transporters, a protective filming agent and varying levels of N, K and Mg supplements - the chosen formula will balance these supplementary values with those of the irrigation water to provide an acceptable bicarbonate environment and maximise turf performance.

DELIVERS MORE WITH EVERY DROP

In addition to the numerous benefits mentioned previously, Quadrop also:

- Contains a natural filming agent to **protect** pipes, fittings & spray heads from corrosion and scale build-up
- The acidifying action deters **worm casts** from the soil surface
- **Sustainable Golf** programs will benefit from Quadrop to reduce water use and fertiliser waste
- The acid content in Quadrop is de-activated and inherently **safe**.



AUTOMATIC WATER TREATMENT SYSTEM

The Quadrop Injection System is a robust and inexpensive system for dosing Quadrop at almost any site. The system is easy to operate, precise and requires little-to-no maintenance.

- Compact self priming peristaltic pump
- Identical back-up pump with simple flick switch activation, ensures continuous operation
- Fail safe shutoff for over/under dosing and low tank situations
- Optional automatic fault alerts via text message to your mobile phone
- Mobile maintenance and repair service
- Purchase price includes free installation and start-up
- The system is supported by pump-off deliveries of your Quadrop formulation to eliminate staff handling and empty container disposal.



Control panel



Pump-off deliveries

Mains, borehole, river and lake waters can all be treated with Quadrop



READY RECKONER

Use the ready reckoner to determine the size of your irrigation holding tank and calculate the amount of Quadrop required to treat this volume of water.

Irrigation holding tank volume (m³)

Diameter (m)	Height (m)							
	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5
1.0	0.8	1.2	1.6	2.0	2.4	2.7	3.1	3.5
1.5	1.8	2.7	3.5	4.4	5.3	6.2	7.1	8.0
2.0	3.1	4.7	6.3	7.9	9.4	11.0	12.6	14.1
2.5	4.9	7.4	9.8	12.3	14.7	17.2	19.6	22.1
3.0	7.1	10.6	14.1	17.7	21.2	24.7	28.3	31.8
3.5	9.6	14.4	19.2	24.1	28.9	33.7	38.5	43.3
4.0	12.6	18.8	25.1	31.4	37.7	44.0	50.3	56.5
4.5	15.9	23.9	31.8	39.8	47.7	55.7	63.6	71.6
5.0	19.6	29.5	39.3	49.1	58.9	68.7	78.5	88.4
5.5	23.8	35.6	47.5	59.4	71.3	83.2	95.0	106.9
6.0	28.3	42.4	56.5	70.7	84.8	99.0	113.1	127.2
6.5	33.2	49.8	66.4	83.0	99.5	116.1	132.7	149.3
7.0	38.5	57.7	77.0	96.2	115.5	134.7	153.9	173.2
7.5	44.2	66.3	88.4	110.4	132.5	154.6	176.7	198.8
8.0	50.3	75.4	100.5	125.7	150.8	175.9	201.1	226.2
8.5	56.7	85.1	113.5	141.9	170.2	198.6	227.0	255.4
9.0	63.6	95.4	127.2	159.0	190.9	222.7	254.5	286.3

Quadrop calculator (litres)

Water volume (m ³)	Quadrop rate (litres/m ³)	Quadrop required (litres)
28	x 0.2	= 5.6
	x	=

The standard dose rate for Quadrop is 0.2 litres/m³ of irrigation water. 1m³=1,000 litres.

Your local distributor of Terralift products is:



Terralift UK Ltd, 18 The Grove, Market Deeping, Lincolnshire, PE6 8AW
Tel: +44 (0)1778 380 005 Fax: +44 (0)1778 348 835
Email: info@terralift.ie Website: www.terralift.ie

quadrop
IMPROVING IRRIGATION WATER

TERRALIFT

“making irrigation water great for grass”

Quadrop is an irrigation water additive for the treatment of water and soils



Most irrigation waters bring some suspended organic solids and bicarbonates to the sports turf root-zone.

The bi-carbonate converts soil calcium to insoluble calcium carbonate to slow percolation and ‘hold up’ water borne suspended organic solids. Irrigation water high in bicarbonate usually carries damaging sodium with it.

No matter what management regimes are implemented, a bicarbonate level above 100ppm in irrigation water will impede optimum agronomic results on the sports turf where such water is applied.

LIFTS GRASS VIGOUR

- Opens up pore spaces for better water percolation
- Clears excess salts such as sodium
- Increases oxygen levels in the rootzone and balances the air to water ratio
- Slows soil compaction and avoids the development of anaerobic conditions
- Gives turf a boost at each irrigation cycle



Kingsbarns Golf Links, Scotland

" I believe Quadrop helped rain water pass through the rootzone on our greens, I rate it. The first big rain after using Quadrop was a key promotional day and the greens stayed as firm as if no rain had fallen."
Innes Knight, Course Manager.

UNLOCKS Ca & OTHER MINERALS

- Releases minerals such as Ca and Mg contained in the water and soil
- Contains mineral transporters to aid absorption of minerals (e.g. Fe and Mn)
- Buffers soil pH making K, B, Mn more available



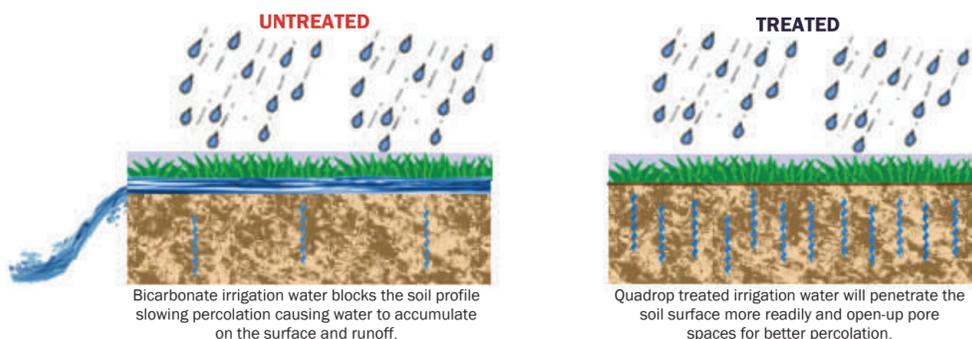
Portmarnock Hotel & Golf Links, Ireland

“Quadrop this season saw the fescues bound forward and then with the irrigation down over 4 warm May days the grass vigour and colour held - a real bonus”
Fintan Brennan, Course Manager.

The top 4 symptoms of poor quality irrigation water

1. Greens go backwards after irrigation
2. Dry patch/drought conditions persist despite increased irrigation
3. Water runs across the surface of the green rather than penetrating straight down
4. Weak greens going into winter

Improving water penetration with Quadrop



SAVES MONEY

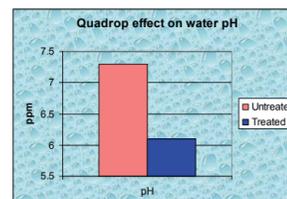
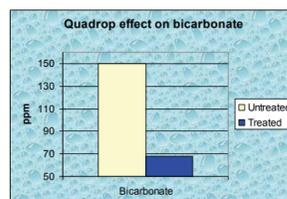
- Reduces water loss from runoff and evaporation
- Applied fertiliser nutrients are more effective
- Treats the cause of rootzone percolation and nutrient uptake problems
- Switching from mains water to an alternative water source can save money



Abbey Hotel Golf & Country Club, England

“Since using Quadrop this year we have found the greens stay greener and water seems to clear quicker. Financially we expect to save several thousand pounds in mains water bills by switching to the bore hole water treated with Quadrop”
Craig Tidmarsh, Head Greenkeeper.

Improving irrigation water with Quadrop



Typical results of treating irrigation water with Quadrop. With a bicarbonate level below 100ppm the irrigation water will no longer contribute to the conversion of soil calcium to insoluble calcium carbonate and the subsequent accumulation of sodium in the root-zone.

BOOSTS WINTER PLAYABILITY

Irrigating with poor quality water during summer and autumn will clog up the soil profile making playing surfaces more difficult to manage during the wet and cold Winter months.

- More open profile going into Winter
- Surface water clears more quickly after rain
- Greens stay firmer
- Marketing edge for winter golf



Waterton Park Golf Club, England

Quadrop has proved itself to be a key element in our continuous improvement program for our greens, and has undoubtedly led to our best ever presentation of the course for winter golf”
Eddie Eyre, Greens Director.

Quadrop in detail

Treats the cause not just the symptoms

Quadrop treats the cause of rootzone percolation and nutrient uptake problems by breaking down existing bicarbonate deposits in the soil and neutralising the source of new deposits from the water before irrigations. Thereby slowing compaction build up, dry patch and thatch development.

Reduced water loss from runoff and evaporation

Quadrop treated water will penetrate the profile more quickly to moisten the whole root zone for no runoff or surface accumulation. Less waste may enable the volume of water at each irrigation to be reduced. For example, reducing watering time per green from 10mins to 8 mins will reduce water usage by 20%.

Gives turf a boost

All of the ingredients of Quadrop are utilised by the grass as plant nutrients giving turf a boost at every irrigation cycle.

More efficient use of fertilisers

The more open profile ensures that as applied nutrients solubilise they are carried below the surface for uptake by the roots rather

than accumulating near the surface.

More effective pesticide and fungicide applications

The lower water pH will make chemical tank mixes more effective by reducing any alkaline hydrolysis effects. Additionally, the more open soil profile ensures nutrients and organic matter are not accumulating near the surface and supports microbial activity for less disease pressure.

Improved pumping efficiency

As bicarbonate deposits are removed from pipes and pumps pumping efficiency is improved for less stress on components and lower power consumption. For example 2.5mm of scale build-up in a 4” pipe could increase pumping costs by 40%.

Switch to a cheaper alternative source of irrigation water

Switching from mains water to an alternative water source can save money. For example, bore hole water treated with Quadrop is less than half the price of untreated mains water. Typical costs are mains water £1.10/m³, bore hole water £0.03/m³, Quadrop additive £0.50/m³.