

Edition 5



# NEWSLETTER

January - April 2020

**Welcome** to Edition 5 of the Amenity Newsletter.

The New Year has started and time to look forward excitedly to the season ahead. Decisions have to be made for many on what products to use and what programmes to adopt this year. For manufacturers such as ourselves preparations continue for the peak supply season in terms of manufacturing and stocking products to be able to supply customers promptly during this period. We are also increasing our headcount in January as our business continues to grow – in 2019 we saw another remarkable year of growth in our amenity business. We're not complacent though – we know we have to keep servicing our customers well to earn your business and our products need to perform for you.

In January we will exhibit at BTME – please do visit our stand (Red Zone 205) – we'd love to see you there – we'll be represented by our three very knowledgeable technical sales staff Ian, Nathan and Peter as well as myself. Personally I really enjoy BTME – meeting people, the buzz the exhibition creates and also, if I'm honest just being in such a lovely town as Harrogate.

We are in a great industry and as ever we are very grateful to all our wonderful contacts – our customers, suppliers and even our competitors as we all make our way and make this industry such a vibrant and fascinating one to be in.

Here's to a happy and successful 2020 for all of us!

**Paul Morris**  
Managing Director



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# Formulation 42

**Uniquely Advanced Wetting Agent – Residual & Penetrant**

***It's out there! Formulation 42 is now commercialised for sale after successful trials at 7 sites during 2019.***

***Formulation 42 is our most advanced wetting agent with some unique firsts.***

Firstly we have further optimised the block copolymer residual components – enhancing further the wetting power and the longevity.

Secondly and quite uniquely we now have a penetrant system which is designed for greater longevity too – resisting biodegradation for longer as well as incorporating a superwetting surfactant which also keeps the sward drier after application.

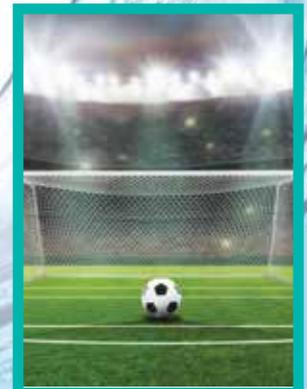
Use rate is 12.5L/Ha monthly and this is designed to cope with all conditions except extended very hot conditions where the rate should be increased to 17.5L/Ha. 12.5L/Ha gives a dose of 10L/Ha of highly optimised residual wetters and 2.5L/Ha of a concentrated unique and highly effective penetrant system.

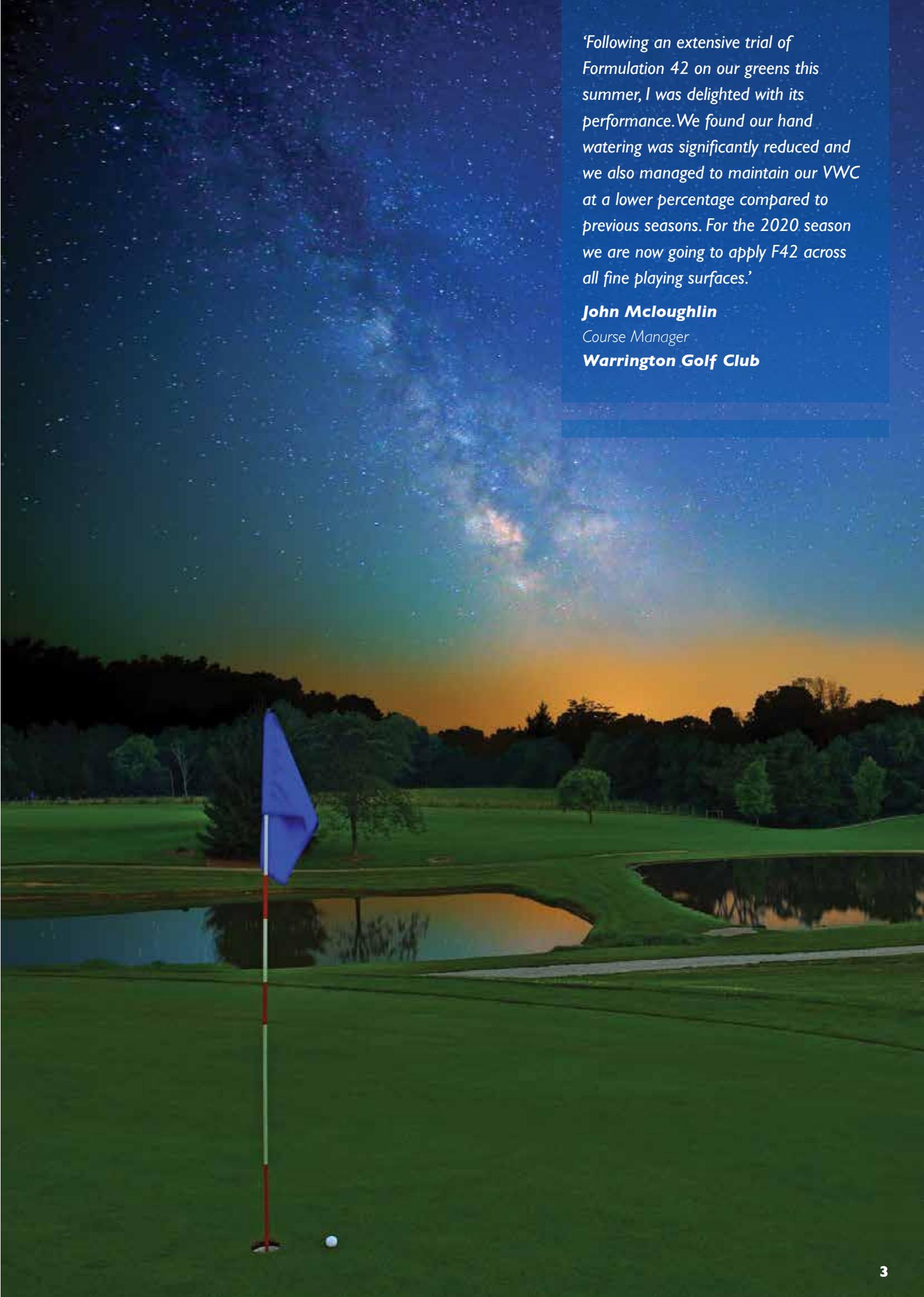
Benefits from trials have also shown that nutritional inputs can be reduced in some cases.

## FORMULATION 42

**Product is supplied in:**

5 and 12.5L packs, 120 and 200L Mausers





*'Following an extensive trial of Formulation 42 on our greens this summer, I was delighted with its performance. We found our hand watering was significantly reduced and we also managed to maintain our VWC at a lower percentage compared to previous seasons. For the 2020 season we are now going to apply F42 across all fine playing surfaces.'*

**John McLaughlin**

*Course Manager*

**Warrington Golf Club**

# The Benefits of Kelpak

***Kelpak is a seaweed extract from the species Ecklonia maxima – it grows only in the southern oceans between South Africa and Namibia.***

*The harvesting is done sustainably from plants growing typically up to 8 metres long, growing in their natural environment. The harvest reaches the factory within about 2 hours.*

The extraction process for Kelpak is a unique one – termed cell burst. The seaweed is treated to pressures of around 350 bar and then this pressure is removed rapidly. This has the effect of bursting the cell walls and extracting a liquid from the seaweed. This process uses no external heat nor employs alkaline hydrolysis and thus the properties of the liquid are very well persevered.

Kelpak contains a cocktail of bioactive compounds and nutrients including auxins, cytokinins, GA's, brassinosteroids, phlorotannins and polyamines which act individually or in concert, to contribute to the numerous favourable physiological responses elicited by Kelpak® such as enhanced growth and yield and improved stress responses to various biotic and abiotic stresses.

Kelpak has a particular ability to promote root growth which then contributes to healthy sward development. Indeed one of the periodic quality control tests for Kelpak is to grow Kelpak treated plants for 10 days and count the number of roots that have developed

Kelpak has been found to enable plants to better cope with nematode attack – it does not prevent the attack but due to the increased lateral rooting the effect on the plant is much reduced.

Programmes: For turf maintenance apply Kelpak monthly at a rate of 5L/Ha (typically dissolved in around 500L water) – this is half the typical rate of a 'triple seaweed' based on *Ascophylum nodosum*. Applications can be made from spring through to autumn. For new turf initial rates of 10L/Ha are recommended.

The shelf life of Kelpak is given as 2 years from manufacture – although 6-8 x 1 litre bottle samples are submitted for bioassay every 6 months and material is found to be good after 3 years from manufacture. Kelpak should however not be stored in direct sunlight or stored above 40°C.



Ecklonia maxima being sustainably harvested for the production of Kelpak. This is an aerial view looking down onto two harvesting boats.



The Production of Kelpak: Pressure is applied and then removed leading to the bursting of the cell wall and extraction of biostimulant liquor



A quality control test on Kelpak involves measurement of increased lateral root growth

# Product Focus: **Molasses**

## - **What's Not to Like!**

***In recent years one product that has seen rapidly increasing sales for us is molasses – either supplied as a bought-in commercial molasses blend or in the product Molassium which we blend in house.***

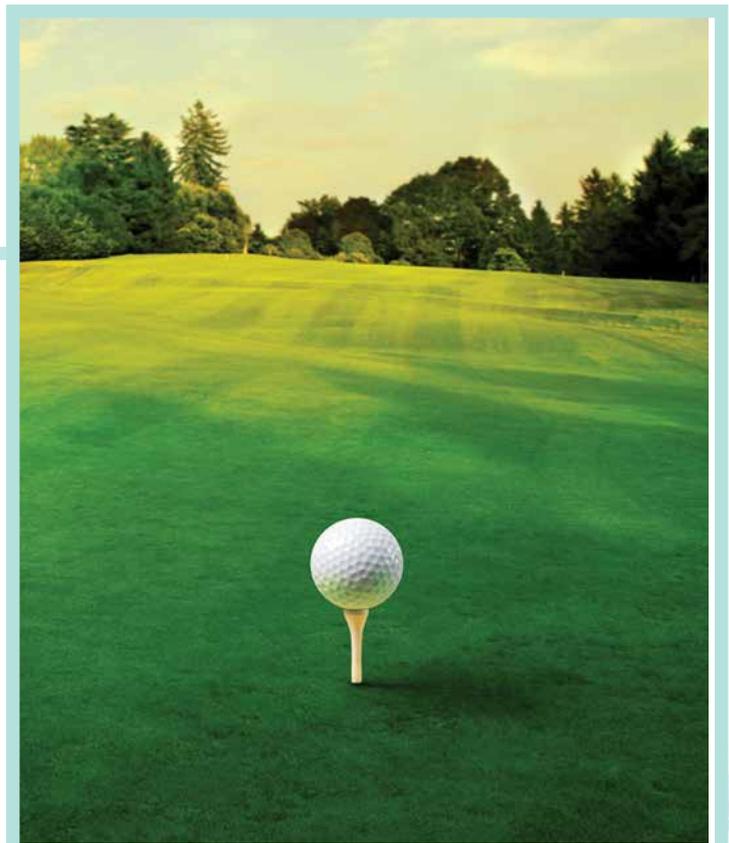
Based on black strap molasses our products are a very cost effective but excellent way to provide additional carbon to a fertiliser programme as well as to provide a food source to soil microorganisms.

Molasses is a by-product of sugar refining – it contains sugars still but crucially all the nutrients from the plant that are not wanted in the pure sugar that has been extracted. Strangely enough for sugar refining the best bit is the bit that is left behind (the molasses) – not the pure, nutrient poor sucrose that is overused in our diets.

Our molasses also naturally contains about 2% organic nitrogen along with a whole range of minerals including, potassium: 5.1%, calcium: 0.7% and magnesium 0.4%.

We supply straight molasses in 200 litre drums and IBCs and blended Molassium in smaller packs too. You'd be quite surprised at how cost effective it is and what benefits it can bring to your programmes.

As one of our sales staff, Ian Lane, puts it “what's not to like – natural, really cost effective and a great source of carbon, minerals and organic nitrogen – to feed the plant and the microbes”.



# Maintaining Balanced Healthy Growth

## **What are the Thresholds for Balance within the Soil when considering the Ratio Law?**

***Peter McMorran continues his discussion from Newsletter 4 on the use of a balanced elemental nutrient programme and how to deliver sustainable growth on a golf green whilst minimising the risk of disease. Peter puts forward a now tried and tested approach to the application of macro and micro nutrients of controlled drip feeding which has shown success at an increasing number of golf clubs in the UK.***



As highlighted in Newsletter 4 the phenomenon of "Dilution by Growth" linked with input of both Nitrogen and Potassium is a factor that needs further reflection if the management of turf is to move towards a more sustainable position.

There is no doubt that both nitrogen and potassium play a significant part in the plant's growth and development cycle but research clearly highlights that some practices associated with their input can encourage development of disease by weakening the plant at a time when environmental conditions are favourable to pathogen activity.

In summary, low nitrogen input favours control of obligate parasites and an increased input of nitrogen aids control of facultative parasites. Increased input of potassium favours control of both obligate and facultative pathogens. When stating an increased level of input there will be an optimum, taking environmental conditions and the plant's growth cycle into consideration, above which no further benefit is gained. Continuing to increase the input of either nitrogen or potassium above this optimum is likely to weaken the plant making it more susceptible to attack for the reasons noted in Newsletter 4.

The key to gaining maximum disease control from nutrient input would appear to be balance and aiming to understand and maintain a position as close as possible to the equilibrium found within nature that allows the plant's defence mechanisms to function at their optimum. As nitrogen and potassium can be supplied on a regular basis throughout the year, a closer look at the input levels and ratio between the two nutrients may well be worth further consideration. When typical dry matter content is considered (Newsletter 4) the ppm for nitrogen and potassium are 15000 and 10000 respectively giving a ratio of 3 parts N to 2 parts K. Using this ratio, the next decision is how much volume and this will be dictated by the growth level to be generated at a particular time of year. Assuming the plant is in full growth due to environmental conditions providing the necessary light, heat, air and water the input of N to stimulate growth (no growth inhibitor applied) that delivers circa 5/6 boxes of grass/Ha from greens per day over 14 days (2 empties if using a triple mower) is likely to be between 0.5g of N/m<sup>2</sup> - 0.7g of N/m<sup>2</sup>. The corresponding need for K

would be 0.33g of K (0.4g of K<sub>2</sub>O)/m<sup>2</sup> - 0.46g of K (0.56g of K<sub>2</sub>O)/m<sup>2</sup>. Reflecting on the above input it then becomes possible to increase/decrease input of N and K in known increments to achieve the desired growth rate or until disease starts to be noticed. This would indicate a threshold in relation to the known prevailing environmental conditions and the plant's stage in its annual growth cycle. However, if the above rates deliver the steady growth required with no disease then a rate of input has been determined that provides turf performance in a sustainable way. Also, should a growth inhibitor be applied as part of the overall programme the growth rate will slow further and should be noted in relation to the input of both N and growth regulator. The input of N would remain relatively constant unless environmental conditions dictated otherwise or until the seasonal change in light period and temperature dictate a reduced input for autumn/winter or an increased input for spring /summer.

Drip feeding by sprayer provides the greatest accuracy and control of input and increasing/decreasing input by 0.1g or less per m<sup>2</sup> is a straight forward process. Close monitoring thereafter of the plant's health and the sward's performance following application allows an accurate set of relevant facts to be recorded that will provide foundational and reliable knowledge for ongoing development of the nutritional programme for a selected area. Moving towards a fortnightly application apart from periods of frost or snow may well be considered to be beyond the capacity of available manpower. However, feedback from those clubs that have started to adopt a little and often approach highlight that the control gained is worth the effort and required changes to work practice. One club that has been developing its drip feed approach over the last 4 years has now gone 2 years without the need for a blanket spray to control microdochium but will spot treat on an ad hoc basis on the weaker greens where shade and airflow is an issue. This observation of lowered disease pressure is also being noticed at other clubs adopting this approach so it will be interesting to note if this observation of improved disease resistance/tolerance continues over time. It should be noted that these clubs are looking at balance feeds throughout the year based on N, P & K or N, Ca & Mg with trace elements also being included.

Keeping it simple and working with nature has clear advantages and when we consider the ratio between N and K in dry matter terms i.e. 3:2 then it is reasonable to enquire as to why there are so many different fertiliser analyses available on the market, some of which will be more than capable of delivering "Dilution by Growth" when applied at recommended rates. When we consider 5 of the macro nutrients in dry matter terms i.e. N, P, K, Ca and Mg we see the ratio between them is 7.5 : 1 : 5 : 2.5 : 1 (see Newsletter 4) so what reasons can be provided for not using these ratios from nature as a good starting point when applying a combination of elements e.g. N P K or N Ca Mg? Finding prepared liquid, granular or soluble fertilisers using these ratios from nature will be few so it is always worth considering to prepare an in house liquid feed using technical grade soluble straights e.g. 6.25kg ammonium sulphate + 8kg urea + 2.5kg of mono ammonium phosphate + 6.7kg of muriate of potash. This feed delivers circa 5kg of N + 0.66kg of P + 3.3kg of K over 1Ha.

Using the aforementioned ratios along with an understanding of solubility and compatibility of technical grade straights it becomes a simple process to develop a range of in house liquid feeds for use throughout the year that will work with the plant's growth and development cycle taking the unfolding environmental conditions into consideration. Such a process allows the user to move beyond marketing and look more closely at the constituent parts of the plant in dry matter terms and what nutrient sources can be used to deliver the essential elements for the plant's health. With such a move the end user develops a better understanding of what is being applied and why, as well as being able to monitor the plant's response and then adjust the in-house feed accordingly.

Taking nature's example, it builds up the nutritional status of the soil slowly as the majority of plant growth decays and decomposes in situ. The process of mineralisation releases nutrients for uptake as well as producing humin, humic acid and fulvic acid that contain nutrients for longer term release, increase CEC for nutrient retention, increase water holding capacity, improve soil structure and provide habitats for increased numbers of microbes. Soil moisture content, air and temperature are key for optimum rates of mineralisation and release of nutrients for plant uptake from the decomposing organic matter that will have the 16 essential elements in a ratio dictated by nature itself and necessary for a plant's existence. As this natural cycle of growth, death, decay and mineralisation occurs there is a gradual increase in nutrient release as temperature picks up provided adequate air and water are available and then declines as temperature falls or water is restricted. This process delivers a steady and balanced approach but has to be adapted for those areas where clippings and essential elements are removed and therefore a little and often approach using a balanced feed with selected elements in an acceptable ratio (as found in dry matter terms for a healthy plant) allows a feeding programme to work with the natural cycle.

Cations and anions essential for plant growth are adsorbed in two ways to the cation exchange sites. Firstly there is the outer-sphere complex where water molecules surround (hydrate) the ion and form a bridge between the charged colloid surface and ion. The more water molecules between the colloid surface and the ion will result in a weaker bond and the ion can be easily replaced by another ion from the soil solution and thus become available for plant uptake. Secondly there is the inner-sphere complex and an ion adsorbed in this way is directly bonded to the charged site on the

colloid surface with no intervening water molecules. Ions bonded in this way are held tightly and unlikely to be dislodged easily. What is clear, is the necessity for maintaining an acceptable level of soil moisture that delivers continuity of water film around soil particles/colloidal material for those ions that are linked with outer-sphere complexes and exchange into the soil solution for movement towards the root surface for uptake.

Another point for consideration is the Ratio Law. In theory, this is movement of ions between the soil solution and the cation exchange sites on the colloidal material so the ratio between ions on the charged sites is equal to the ratio between the same ions in the soil solution. Clearly this is a simple explanation as the whole process will be more complex if the exchanging ions are of a different charge e.g.  $Mg^{2+}$  exchanging with  $K^+$ . Also, ions in solution will be taken up by the plant and removed from the solution and a percentage of these ions will then be removed by mowing. There are also ions in solution forming precipitates and dropping out of solution and being leached through the profile or becoming locked up and only slowly available thereafter and then there are the effects of the soil food web and mineralisation. When these issues are taken into consideration then working with nature to maintain a balance, especially on sandy root zones, where CEC is low, would make sense and this takes us back to a little and often approach that aids the natural process to deliver the equilibrium the Ratio Law, in theory, endeavours to achieve.

Once nutrient ions are within the apoplasm the cell membrane separates them and the soil solution from the cell interior and dissolved ions are only able to pass through the membrane by reacting with a chemical binding site on a protein carrier molecule. Individual nutrients are linked with different types of carrier molecules to gain entry through the cell membrane and this provides the plant with a degree of control over how much of a particular nutrient is taken in relative to the individual quantities of other essential elements required by the plant. Since ions of essential elements, brought to the root surface by mass flow or diffusion, cannot enter the plant cells by passive diffusion but depend upon active transport and a degree of selection it must be worth considering the ratio of essential elements in plant dry matter terms along with the Ratio Law that highlights nature's aim of equilibrium of ratios between these essential elements as found on the CEC sites and the soil solution when considering nutrient input to assist the natural cycle to benefit the plant.

In conclusion, how close a programme can get to maintaining the ideal state of equilibrium can only be monitored and judged over time and this is made more difficult as the balance of soil nutrients is always changing due to the various processes that are occurring, but aiming towards that goal must surely assist in developing an improved soil habitat to support the plant's health to cope with biotic and abiotic stress. So, using knowledge derived from studies on plant growth/health plus observation of the sward's response to nutrient input to develop a balanced feed programme that avoids "dilution by growth" whilst giving due consideration to the ratio between elements and soil processes linked to the Ratio Law would seem a reasonable place to start.

## Marketing

### Marketing is very important right?

Yes it is – if we don't get the word out there about us and what we offer then we aren't going to do as much business and we aren't going to service as many customers. I think though marketing conveys a lot about the values of a Company.

### What do you mean by that?

It's important when discussing technical products to try to stick to the science and to focus on the pertinent facts. With marketing it's very easy to mislead customers in order to give a certain impression and hope to increase the sales of a product – the aim of increasing sales is fine of course but marketing must be done honestly and not mislead. In reality customers are very discerning so many can see through such attempts but there is a responsibility to be honest and not to mislead and these are important aims. Exaggeration of a products abilities can also arise.

### Go on....

An example I like comes from when I first started venturing into the outdoors backpacking. I remember at the time studying the performance of sleeping bags. Sleeping bags can be rated according to what temperature they will perform down to. From one supplier they would rate the sleeping bags much lower than the other supplier. I bought a synthetic sleeping bag rated to  $-20^{\circ}\text{C}$  – I remember the first sub-zero night I spent in it – it got down to about  $-5^{\circ}\text{C}$  – I didn't sleep too well that night – I was rather cold! It turns out the other company rated it to about  $-7^{\circ}\text{C}$  – which probably was a more accurate reflection of its limits. I then realised that a bag rated  $-10^{\circ}\text{C}$  from one company would probably perform a bit better than one rated  $-20^{\circ}\text{C}$  from the other!

### I guess we can think of lots of examples like this!

Pricing can mislead too. Examples I've been suckered into recently were kettles and electric razors! I picked up a kettle recently in a supermarket reduced from

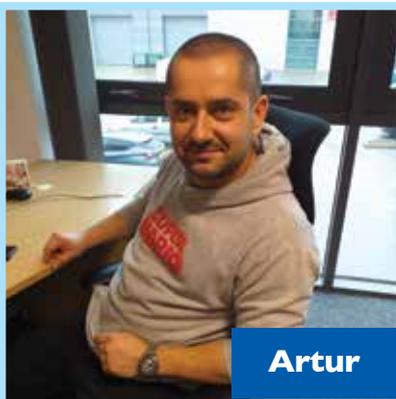
£59 to £29 – looked like a bargain but when I got it out of the box it was clear that it wasn't worth £59 – if you'd paid that for it I think you would have felt a tad overcharged. And electric razors – almost permanent offers abound of products at half price – my current razor I bought for £90 – that was half price – wow a £180 razor I thought for just £90. The reality is it didn't even include a carry case and the shave is less close than my previous £60 razor – it certainly wasn't £180 worth of razor I'd bought but the pricing strategy did hook me into the sale (and price is one element of marketing – have you heard of the 4 P's of marketing? Or even the 7 P's of marketing?).

### So what message are you trying to convey here?

For our industry you do see it too - a product offered with an inflated RRP and then a permanent discount already marketed on. I say beware of using the RRP to judge the quality of the product and relate that to the price position and quality of a similar functional product from another company. Also, sometimes recommended rates can be another area where different companies have different standards – a bit like the sleeping bag analogy.

Marketing is a wide topic – this newsletter is part of our marketing of course and how we distribute it (hard copy and email) is too and how we otherwise guide people to it (social media and links in our email footers). Nearly all companies have to do it to survive and thrive – to reach and inform their customer base. As for my expertise in marketing – I've a lot to learn for sure – two modules in my Open University MBA – one 6 month long and one 9 month long were dedicated to it but that was some time ago now – before social media for sure and also before this modern age of information bombardment. Market we will, but our aim is to market as we would want to be marketed too and we know too that in this industry there is no substitute for what really matters and that is the direct relationships we build up between our staff and you the customer!

## Meet Artur and Glen! GBR Technology are delighted to welcome them to our team.



**Artur**

Artur started with us on 9th December and is a permanent member of our warehouse and production staff. Glen is starting on 20th January combining warehouse and production along with some office support to our purchasing department. Both come with relevant experience and we are looking forward to them being in the Company for many years to come.



**Glen**

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