



# DON'T JUST FERTILISE.....UTILISE!

**Richard Fry talks with Neil Mackenzie, Rigby Taylor Business Development Manager, about some important considerations to be aware of when assessing the benefits of incorporating liquid fertilisers into the turf management programme**

“Record high as UK basks in sunshine”. This was the headline as the country enjoyed the hottest February 12 on record. In Trawscoed, Wales the mercury reached 18C!

With such un-seasonal weather, player expectations will be unreasonably high over the coming months and the greenkeeper's greatest challenge will be to maintain healthy greens with good colour whilst, at the same time, producing a consistent playing surface and fast putting speeds throughout the playing season.

Controlling leaf tissue growth is essential for meeting demands for putting quality. However, lowering the mowing height to gain better ball speed and roll can compromise the turf's root systems. Achieving the right balance of leaf tissue and surface playability is also essential for retaining carbohydrate reserves, because when top growth, is removed the plant responds by trying to replace its lost photosynthetic area. This, the plant does, by drawing on valuable carbohydrate reserves stored in the roots with the result that a potential nutrient deficit situation occurs, at exactly the time of the year when these reserves are most needed.

When designing and implementing the ideal nutrition plan for turf, understanding the importance of sources of fertility and timing of application of the necessary nutrient levels is essential. For golf greens, prudent levels of nitrogen should be used so that soft growth is not encouraged. This will result in finer leaves and slower production of thatch, which ultimately should reach a position where build-up of organic matter is compensated by decomposition.

It means taking control of the nutrient inputs and not letting them control you!

Today's maintenance standards eclipse those of just a few years ago. The conventional ways of looking at soil fertility and plant nutrition are no longer adequate. Phrases like “soluble nitrogen,” “available phosphorus,” “chelated” and “essential” have been the unquestioned basis of defining, registering, and comparing fertilisers for many, many years. However, this has never been an adequate way to consistently explain or understand a plant's response to a given fertiliser.

For example, all granular and most liquid fertilisers that are designed for root uptake rely completely on a set of conditions such as soil moisture, temperature and microbiological activity to control their release and availability, all outside the control of the turf manager.

This is not a criticism of either granular or liquid root uptake fertilisers; however, prudent professionals need to be aware of some of the inherent limitations, particularly under adverse climatic conditions and under circumstances that cause plant stress. So, if you're managing intensively maintained turfgrasses and your fertilisation program is solely dependent on root uptake, consideration should be given to the enormous potential offered by foliar applied nutrition.

Today's modern, forward thinking turf professionals have gone far beyond the agriculturally biased view of plant nutrition where the emphasis was on the application of solids and kgs/ha and units/acre defined their view of fertiliser inputs. Density not excessive growth, consistency of playing surfaces (all year round) and natural, not artificial colour are now the watchwords for managers of fine turf.

From a technical point of view, liquid formulation chemistry has advanced out of all recognition to what was available in the past. Many of the

drawbacks associated with liquid applications such as high scorch potential, high water volumes, limited product ranges and short intervals between applications have been eliminated.

Research by Rigby Taylor into advanced formulation chemistry has developed liquids that offer controlled nutrient release, are easy and accurate to apply and the nutrients are absorbed both through the leaves and roots of the grass plant. Some products even offer eight-week application intervals.



Easy of application, speed of spraying, no surface residue and tank mixing are clear features of a liquid fertiliser selection

### COMBINING PRODUCTS HAS BENEFITS:

Another major benefit to using liquids compared to solids is the ability to tank mix different products. With labour often at a premium, particularly during the busy spring and summer, any opportunity to combine treatments will be beneficial. Tank mixing is however a potential minefield and operators should consult with their suppliers as to the work that has been undertaken on product compatibility. Comprehensive and published compatibility charts are the operators assurance that they are dealing with a reputable company and can use their products with confidence.

A further reason to consider the use liquid nutrition is the option of combining trace elements and other ingredient such as amino acids, humates and, even simple plant sugars that provide an energy source for mycorrhizal fungi. In exchange for this energy supply, the fungi, in return, provides the plant with a supply of nitrate and phosphate.

Efficiency is the critical factor because root uptake of fertiliser takes energy. A well-designed foliar, applied in relatively low water volumes, will have a high proportion of its nutrient content remaining on the leaf tissue until its absorbed.

The faster a foliar is absorbed through the leaf tissue and, the faster it translocates within the plant, the more efficient it is and therefore, the better it is.

This has a two-fold benefit: 1. Ensures a more reliable and controlled feeding of the plant. 2. Allows the plant to conserve energy that it can better use to tolerate stress.

Turf managers also need to look beyond N.P.K. fertiliser and consider

products that include ingredients with an activity that is relative to root growth. There are several such products both in granular and liquid formulations that are equally successful so the choice is up to the individual depending on the application equipment available. An example would be products that include amino acids to help alleviate growth problems associated with shade.

Products containing humic acid can also be considered but it is essential that the source is identified and the product selected contains potassium humate. Many soil tests indicate high levels of phosphate derived from a mineral source but it is questionable how available this is to grass plants, so it may also be worth considering the use of organic phosphate

Whilst there are, quite rightly, greenkeepers that concentrate on the maintenance of greens, the tees are also very important; they are of course the first surfaces the golfer experiences when playing each hole and provide that 'first impression' of the course.

Sophisticated slow release fertiliser is very suitable for tees and in some cases may only need to be applied once in the spring and once in the autumn. An example would be a product containing at least 50% methylene urea together with an appropriate percentage of fraction two and three, long chain polymers.

What you feed you turf, when you feed it and how, all have a great impact on its photosynthetic capacity, physiological fitness, root mass and carbohydrate reserves, stress and disease tolerance, colour, quality and consistency.

What you feed you turf (the source of nutrients) matters greatly. Not all seasons are the same, so not all fertility plans are created equal, nor do they produce equal results.

For optimal turf quality, emphasis should be placed on complete and balanced nutrition involving organic complexes, chelated nutrients, proteins, seaweed extract and other beneficial supplements such as amino acids, vitamins and fulvic acid.

When you feed your turf (the distribution of nutrient loading during the year) has a great effect on the carbohydrate storage and leaf tissue growth. Planning the distribution of nutrient loading is important as it maximises root mass and carbohydrate storage and minimises leaf tissue growth. Research has demonstrated that approximately 50% of the fertility applied to turf should be undertaken in the 2-3 months prior to dormancy to maximise carbohydrate storage – that means autumn applications and hopefully, as the spring approached, this plan has already been implemented.

How you feed your turf (how it processes nutrients) should be directly related to mowing height. When heights are low, root mass potential is diminished. Root mass is diminished naturally in the summer due to ambient and soil temperature changes. When root mass is weakened and or roots are under stress, it's vitally important to feed the turf directly through the leaf tissue.

### MAJOR FORCES YOU CAN'T CONTROL

At the end of the day the choice will lie with what works best given the specific situation, however there are forces that operate over which the turf professional has no control. For example, player requirement for tournament-type playing conditions will continue to increase and public demand for environmental controls will intensify.

Given these realities, greenkeepers will be expected to do more with less and produce better, more competitive playing conditions with fewer traditional fertilizers and synthetic pesticides. To achieve these goals, products will be required that are based on science and built upon a firm foundation of facts not fiction.