



OTTERBINE AERATION. AT THE HEART OF TOTAL WATER MANAGEMENT SOLUTIONS.

Transform your problem lakes, ponds and water features into healthy, sparkling attractions, with Otterbine water management systems.



Tel: 01480 226948
www.lely.com www.otterbine.com

— partners in turfcare —

C-Complex

An organic fertiliser for rapid post-renovation recovery!



- Soft granular form
- Fast breakdown
- High in humic acid
- Rapid establishment

01223 597834

info@headlandamenity.com
www.headlandamenity.com

THE MISSING PIECE THAT
MAKES ALL THE DIFFERENCE!

FARMSEA 10

Ultimate liquid organic fertiliser combining feeding, conditioning with 10% Seaweed

Scientifically proven to increase bacterial & fungal populations, Farmsea 10 promotes a dense, deep rooting sward. Releases locked up nutrients making them available to the plant.



Approved compatibility
with Aquatrol's Revolution

farmura
environmental

www.farmura.com

info@farmura.com

tel: 01233 633 267

very positive growth effect, although the same treatment applied to St Augustine grass (*Stenotaphrum secundatum*) under identical conditions had a negative and even toxic effect.

‘Friendly’ fungi and bacteria

Should any living organism claiming to boost and benefit grass growth be called a biostimulant? That will depend on whether the action is direct (i.e. via the grass plant metabolism) or indirect, e.g. through the suppression of other potentially pathogenic microbes. *Trichoderma* fungi may antagonise *Microdochium nivale* (causal pathogen of Fusarium patch) to suppress the disease but are not acting directly through the plant.

Nitrogen fixing bacteria (*Rhizobium*) colonising clover roots conform more closely to a biostimulant model. By the same token mycorrhizal fungi in association with grass roots and especially endomycorrhizal fungi are biostimulants.

Clovers are important beneficial components of agricultural grass swards but overall effect on turf is negative. Biostimulation of white clover (*Trifolium repens*) or bird’s foot trefoil (*Lotus corniculatus*) prostrate, creeping and damaging weeds of professional turf, particularly during periods of moisture stress, far outweighs any marginal benefits of nitrogen containing compounds ‘leaking’ into the root zone or nitrate becoming available when clover plant material decomposes in situ.

Pesticide turned biostimulant

Pesticide compendiums are perhaps the last place you would look for a biostimulant but tucked away in the many thousands of commercial products developed over the last half century is at least one fungicide which clearly has biostimulant properties and model ones too.

Fosetyl-aluminium described as a phosphonate (a derivative of phosphorous acid) and discovered in the 1970’s was developed as a foliar applied systemically acting fungicide to specifically control Oomycete fungi like *Phytophthora* and *Pythium*. These highly aggressive plant pathogens have since been grouped with the algae and are re-branded as fungus-like pathogens.

Fosetyl-aluminium caused confusion from the start because it provided excellent control of some species (e.g. *Phytophthora fragariae* causing red core of strawberry) but did virtually nothing against others such as *Phytophthora infestans*

the causal pathogen of late blight of potato.

Scientists eventually discovered that fosetyl-aluminium was not a classic fungicide acting entirely and directly against the pathogen.

A significant part of its perceived ‘fungicidal’ activity was achieved by triggering an anti-fungal response in the plant host tissues.

On this basis fosetyl-aluminium has ‘5-star’ biostimulant status, even though commercial products containing the active ingredient have approval for use as fungicides and are described as such. There is nothing ‘cut and dried’ or ‘black and white’ about biostimulants.



1. *Rhizobium* bacteria form a symbiotic relationship with clover, but which family of plants?
2. What group of plants contain alginic acid
3. To which group of plant chemicals does cytokinin belong?
4. From which of these soil fractions is fulvic acid derived?
5. Which of the following fungi is known to antagonise *Microdochium nivale* and suppress *Fusarium* patch disease?
6. Which fungicide is known to act by triggering an anti-fungal response in the host plant under attack?
7. Which of these grass species is used for managed turf in the tropics and sub tropics?

QR Codes

With CPD quizzes you will see a “QR Code”. These can be read by most smartphones (iPhone, BlackBerry, Android) and will take you to the online quiz. Once completed, we will add 1 Education credit to your CPD account. You can download a “QR Reader” for FREE at any of the respective App stores.
Quiz: goo.gl/RPpDN4



TOP. White clover is an important component species of agricultural grass swards but a highly competitive and seriously damaging weed of managed turf

SECOND TOP. Bird’s foot trefoil is an important component species of agricultural grass swards but a highly competitive and seriously damaging weed of managed turf

INSET LEFT. Research with subtropical and tropical turf grasses showed the response and benefit from treatment with plant hormone (gibberellic acid) varied markedly with turf grass species

LEFT & BELOW. *Trichoderma* and other antagonistic fungi may help stall early infection with *Microdochium nivale* (left), and subsequently ameliorate the amount damage caused by *Fusarium* patch disease (below). The antagonistic fungus is this context is a biological control agent and not a biostimulant (Picture courtesy Syngenta).

- ✓ 4x4
- ✓ 1000lt tank
- ✓ auto rate control
- ✓ ground follow boom
- ✓ 6m boom with 8m extensions



GAMBETTI
Pro - Dedicated 1000



simplifying
SPRAYING

the only dedicated sprayer that ticks all the boxes!

www.gambettiuk.co.uk <> 01361 883418

PORTHCAWL

Ultimate liquid organic fertiliser
combining feeding, conditioning & colour

Scientifically proven to increase bacterial & fungal populations, Porthcawl promotes a dense, deep rooting sward & a healthy colour. Releases locked up nutrients making them available to the plant.



Approved compatability
with Aquatrol's Revolution

farmura
environmental



Win an iPad

How you can
win an iPad in
our revamped
Photography
Competition

In the picture

BIGGA members can win an iPad in this year's Photographic Competition – and for the first time you can submit smartphone images.

Many BIGGA members take stunning course photos on their mobiles – and these entries are now encouraged as we move to producing a desktop calendar for the first time.

We'll also be giving members the chance to pick the winners. A panel at BIGGA House will whittle the entries down to the best 24, then you will be able to pick your favourite through a survey on our website.

The 12 leading entries will be included in the calendar and the winning image overall will win an iPad, plus a large framed version of their image.

We continue to welcome photos taken on digital cameras. The images will be displayed at a

16:9 ratio. If you are taking your shot on a mobile phone, please ensure it's taken on the highest resolution setting possible.

To enter, please send your images to comps@bigga.co.uk with 'BIGGA Photo Comp 2014' in the subject field. Please include your name, the club you work at and your membership number.

Also, please state which course your photo was taken at to allow your picture to be considered. Entries are limited at five per person.

The closing date for entries is Friday 18 July 2014.

BIGGA GOLF PHOTOGRAPHIC COMPETITION 2014 TERMS AND CONDITIONS

- 1 Open to BIGGA members only.
- 2 Photos of the course members work at, or a course they have visited, will be considered. Entries will only be considered if the entrant states what course the photograph shows.
- 4 Each entrant is limited to a maximum of 5 entries ie 5 different photographs
- 5 All photography entered may be used in a variety of publications.
- 6 Images to be high resolution and at 16:9 landscape (actual print size 172mm wide x 100mm high at 300dpi). Only images taken with a three megapixel camera or higher will be considered.
- 7 Entries are via email to comps@bigga.co.uk with transfer methods advised for large files. "BIGGA PHOTO COMP 2014" to be listed in the subject header.
- 8 The best 24 images will be provided for members to give their views on via an online survey. The survey will be linked to through the BIGGA website and will be open to votes within the Members' Area only. The leading 12 will feature in the 2015 BIGGA calendar.
- 9 The winning entry will receive an iPad and a framed copy of their shot.
- 10 BIGGA reserves the right to reject any entry if it is considered inappropriate.
- 11 The closing date for the competition is Friday 18 July 2014.



Cutting edge

Ian Sumpter, Toro's European Training Manager, explores setting up a mower and asks: how crucial is cutting unit adjustment? He puts forward the view that mower set-up and maintenance has the single, greatest impact on how a golf course looks and plays

Do we value the importance of cutting unit adjustment as much as we should? Or put another way: as greenkeepers, how much of our time is dedicated to the cutting units?

I want to examine just a few of the many variables that need to be considered when talking about precision engineering like modern cutting units and achieving the quality of cut our customers have come to expect.

In the early Eighties, when I started my journey in this industry, things seemed much simpler.

The weather appeared so predictable, with four seasons, warm summers and cold winters.

Heights of cut were more predictable, one height in the summer, one in winter and never the twain should meet. Whatever your views on climate change, weather patterns are changing, which means we in turn need to adapt to our ever-changing environment.

Another big change is raised expectations – from everybody! In the Seventies, by mid season, football pitches even in the top flight clubs would feature bare mud in high traffic areas, something totally

unacceptable today. Now we see training academies with multiple pitches that are manicured to the highest standards – an example of how demands are high on groundsman and greenkeepers alike.

So how do we meet these expectations? Do we value the importance in cutting unit adjustment to help us achieve these expectations?

It is my belief consistent and proper mower set-up and maintenance has the single, greatest impact on how a golf course looks and plays.

We work with so many variables, which alter from machine to



CHECKLIST

- Check tyre pressures are in accordance with manufacturer's recommendations and turf conditions. Verify all tyres are correct and set the same.
- Check for any unit compensation spring and that they are set correctly. If working with Toro fairway units, tighten the hex nuts on the front end of the spring rod until the compressed length of the spring is 12.7 cm on Reelmaster 5410, 5 inch cutting units or 15.9 cm on Reelmaster 5510 & 5610, 7 inch cutting units. All units need to be set the same.
- On the Toro RM5010 Series units check the R clip is located in last hole to allow the spring to move freely. The forward hole is used for removal of the unit and will keep the spring depressed making the unit easier to fit back onto the swing arm.
- Check lift arm counterbalance spring setting to increase or decrease counterbalance on the cutting unit. Each setting on the RM5010 Series adds or subtracts 2.3kg to the units.
- Check for wear limits of the reel by measuring from the spindle to the outside of the reel. Manufacturers will list wear diameters and recommended replacement diameter.
- Ensure units are sharp with no visible damage to the bedknife or cylinder.
- Check the unit is on cut, Toro recommend light contact, pinch paper one way cut paper the other. Do not be tempted to tighten the bedknife to reel adjustment at the slightest hint of a poor quality cut. This is a standard error and will not solve the issue and could lead to further problems
- Grease all grease points being careful not to over grease and wipe away excess grease.
- Finally check height of cut is the same on all units.

machine, location to location, day to day and so on.

We therefore need to be able to understand and react to these variables.

Although mower technology has moved on dramatically over the past 100 years, the principles of a cylinder contacting a bedknife remains the same since Edwin Beard Budding produced the first mower. Those very same principles still rely on a sharp, well-maintained and correctly adjusted unit.

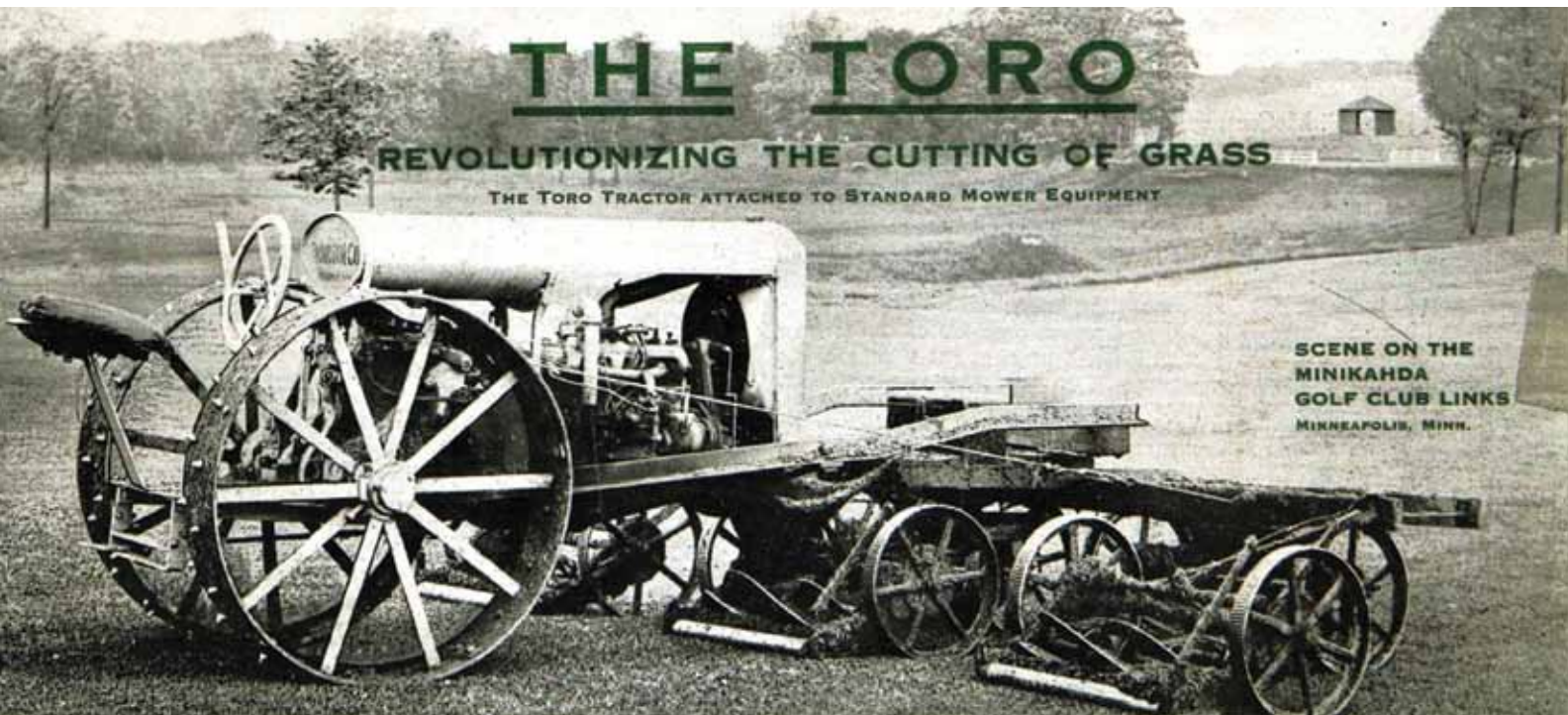
It's also important to consider that poor maintenance and incorrect set-up may impact on a

number of other turf operations we carry out to maintain the playing surface.

In some cases poorly set up and maintained cutting units may lead to damage to the turf. This in turn will mean the turf becomes susceptible to disease.

The result is a need for additional chemical application, fertiliser, scarifying, coring and top dressing, all of which comes at an additional cost in time and materials.

As well as good unit and machine maintenance, it is also important to remember turf conditions. Mowing equipment cannot remedy a turf



THE TORO

REVOLUTIONIZING THE CUTTING OF GRASS

THE TORO TRACTOR ATTACHED TO STANDARD MOWER EQUIPMENT

SCENE ON THE
MINIKAHDA
GOLF CLUB LINKS
MINNEAPOLIS, MINN.

condition. The solution to achieving a good quality playing surface with good aftercut appearance is maintaining the partnership between the turf and the machine. The machine needs to be adjusted so that turf and machine can work together.

Before we get onto the turf, we need to consider what roller or bedknife to choose. Rollers such as Wiehle rollers give less support than a full roller and allow the unit to work more aggressively. This will help the bedknife gather and push the grass plant into the path of the reel blade. However in certain turf or in certain weather conditions we may need to give the front of the unit more support. Solid rollers could be an option although this can cause stragglers as the grass is pushed down and passes under the bedknife rather than being gathered up into the path of the blade. In these cases an option is to use shouldered Wiehle rollers or inserts to achieve the same additional support, which can be removed easily when not required.

Once we have the correct roller we need to consider the choice of bedknife, which is dependent on the height of cut we want to achieve. As an example, a Toro Greens DPA unit with a standard bedknife will allow us to cut down to an effective height of cut of 3.2mm. If the height of cut is likely to go below 3.2mm we would need to consider a micro-cut bedknife. The use of a micro-cut bedknife gives us the potential to go down to as low as 1.6mm (although I don't recommend this as the norm).

At this point we need to consider

the difference between bench set and effective height of cut and how this will impact on our height-of-cut setting. The difference between bench set and effective height of cut will depend on factors such as agronomy, weight of units and weather. Additionally some hand mowers are more aggressive as they have front bias so the effective height of cut will be lower than a TriFlex ride-on set at the same height.

Different manufacturers have best set-up practice for their own cutting units and additional set-up such as making sure rollers are parallel.

With Toro DPA units it may be necessary to reposition the spacers on the front roller to maintain the recommended bedknife attitude. It's always recommended that you familiarise yourself with the manufacturer's information relating to unit set-up, which can be found in the operator's manual or service manual.

We know why the attitude/aggressiveness of the bedknife is important to the mowing operation, gathering the turf and placing it into the path of the blade.

But when was the last time your bedknife attitude was checked? Are all three, five or seven units the same attitude?

Have you altered the height of cut and not checked what has happened to the bedknife aggressiveness?

You can easily check the angle of the bedknife by using a protractor on a straight rule across both rollers, then on the bedknife. Take the

first measurement away from the second to give you the angle.

When you have chosen the correct machine with the correct cutting unit configuration for your turf conditions, including number of blades, rollers and bedknife, it is important to think about ongoing maintenance of your cutting units.

Of course this only scratches the surface of correct unit set-up. It does not address the many variables that are involved in machinery set-up to correct quality-of-cut issues. If you're not already doing so, this article gives you some ideas of what to check when setting up your cutting units. Many of the main turf industry manufacturers deliver comprehensive training on this subject. For further information contact your representative, whether they are manufacturing grinders and associated equipment, or a Turfcare machinery supplier.

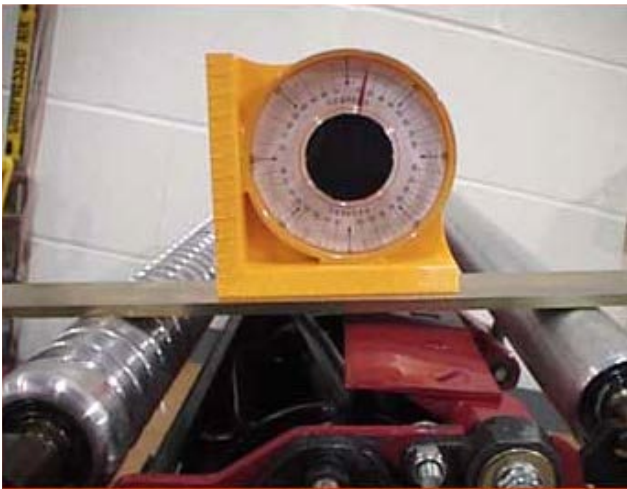
about the author



After studying for a National Certificate in Horticulture, Ian was offered a job as a groundsman and attended Brinsbury College, Sussex studying for a City & Guilds in sports turf management. In 1995 he left the industry and went on to gain my teaching qualification in physical education.

In 2002 he was employed by Lely, the Toro distributor for the UK & Ireland, as their Turf division training manager and later service manager. In 2011 The Toro Company employed him as the Toro European training manager EMEA.





S SCHILLER GROUNDS CARE UK

The new Mantis BunkerMaster.

It's used by greenkeepers to resolve bunker problems, saving time and money. With a more powerful 35cc 4-stroke Subaru engine, spinning spring tines at 200rpm, it lifts and aerates the sand to get bunkers back into shape fast and with minimum effort.

Schiller Grounds Care 0800 840 0888
 golf@mantis-uk.co.uk
 www.mantisdealer.co.uk



Changing times

Peter Billings has been a Course Manager at The Nottinghamshire for many years but has a rather unique experience of having worked for four different owners. Laurence Pithie met up with Peter to gain an insight into what these changes have meant to members, and the greenkeeping team

