

# Compost tea use a case study



The question of adding soil microbes to an existing putting green surface has stimulated much discussion within the world of turfgrass management recently.

Those who are in favour of this 'organic' approach have been keen to advocate its use, whereas others have raised the question of the seemingly lack of independent evidence to support some of the claims being made.

In order to shed more light on this topic, Turf Master One visited James Braithwaite at Long Ashton GC in Bristol, to find out more about the use of Compost Teas and to look at what improvements have been made

## Introduction

Long Ashton Golf Club was founded in 1893, first as a 9 hole course then extended to 18 holes twelve years later. The current layout largely dates back to a Hawtree & Taylor design in 1937 although more recent changes have since taken place, namely holes 6 and 7. Extensive views over Bristol, a mere 3 miles from the city centre, can be seen from the limestone ridge on which the course is located.

The site consists of around 220 acres, with 140 acres being maintained as golf course and the remainder consisting of deciduous woodland. Although the soil type is classified as Red Kyper Marle, clay/silt mainly, drainage is reasonably good with only a few low lying areas requiring drainage. With an average of 36,000 rounds per annum, it is a popular, private members club that attracts visitors throughout the south west. 15 of the greens which are 75 years old, are soil 'push-ups' with the remaining 3 being of a modern sand construction. A Hydroway drainage system was installed on 4 greens several years ago which has led to a significant improvement.

James Braithwaite, a previous Toro Student of the Year winner and now 46, has been at Long Ashton since 1996. Following previous work at Hallgarth Golf and Country Hotel in Darlington, James was first employed as Deputy Head Greenkeeper before becoming Course Manager in 2007; following on from past BIGGA Chairman Ivor Scoones. James heads up a team of 6 full time staff plus a part time gardener & handyman. With a good range of modern equipment and a recent upgrade to the Rainbird Nimbus 2 irrigation system, Long Ashton is a progressive club and keen to invest in its main asset in order to continue to be one of the best clubs in the area.

## Previous Greens Maintenance

Until 2005, the greens were first fertilised with an 'in-house' mix of traditional fertiliser consisting of dried blood, hoof & horn and sulphate of ammonia, followed by the proprietary SSD brand of 8-0-0. This was applied during April and August with an annual input of around 80kgs N/Ha. Greens which are barely 400m<sup>2</sup> were cut daily at 5mm, lowered to 4mm for key tournaments with aeration consisting of regular solid and slit tining. Pressure from Fusarium Patch disease was high, requiring up to 8 applications of Chlorothalonil,

Carbendazim or Iprodione each year preventing severe scarring. Surfaces on the Poa/Bent greens tended to be soft with a fibrous mat layer of up to 35mm present. For the following 3 years, a change in fertiliser application was made using another standard granular product but this time supplying equal amounts of Nitrogen and Potassium, giving an average annual input of N79, P6 & K82 Kgs per Ha. A more intensive aeration program was put in place whereby greens were being hollow-cored for the first time in many years along with an increase in top dressing. Fungicide requirements remained much the same. In 2009, greater use was made of foliar fertiliser although the overall Nitrogen amount remained much the same.

However, there was a dramatic increase in Potassium in the attempt to strengthen the plant against disease attack. Increased aeration continued and the level of OM content started to reduce slightly but fungicide use remained high, mostly in preventative mode. This program continued in 2010 but with the addition of Symbio products for thatch reduction such as Thatch eater, Greens circle, Phyto-gro 0-0-18 liquid, Fungi booster and a granular Mycro-gro 5-0-29 at start and end of the summer season.

## Key Challenges and Revised Strategy

Having been in charge for 3 years, the improvements in greens performance and playability that James had hoped for were fairly minimal. James takes up the story. 'Although the members were reasonably content, there was still too much OM present and too much dependence on fungicides, which were adding to the cost of maintenance. I was aware that in order to produce healthy turf, the rootzone too needed to be healthier and that meant increasing the microbial activity. Following further discussions with Symbio, I decided that a different approach was needed and that part of the answer lay in the brewing and application of composted tea. At least to start with, the current fertiliser program would continue but with a reduced amount of N and K. In preparation for 2011, a 600 litre brewer was purchased costing £1,800 and a new phase began.'

## Compost Tea Program

James continues; 'The program in use since 2011 consists of monthly applications from April to



September of 1 Bacterial followed by 5 fungal brews which cost around £360 each to apply. The former requires 16 hours to brew and is applied through a conventional Gambetti sprayer at the rate of 500 lts per Ha. The Fungal brews which favour thatch degradation take 24hrs to produce and are applied at the same rate. However, this brew contains the following additives of

FROM TOP TO BOTTOM: 2. 3rd hole, 6th hole and View over 16th green Long Ashton





MAIN ABOVE: 7.  
Par 3 on the 2nd green Long  
Ashton  
INSET ABOVE: Adding the brew  
to the sprayer

Seaweed 3-0-15, Bio Booster 8-7-7 and both Humic and Fulvic Acid amendments, totalling 55 litres. The total cost for the 6 applications is around £2,100. Fertiliser applications have continued largely as before, rising in 2011 but falling back this year with an expected total of N75-P3-K160 being applied.

The greens have been regularly aerified throughout the past 3 years using a mixture of tine sizes and depths. All greens were recently hollow-cored with 13mm tines at 50mm centres and deep tined in March. About 100 tons of sand top dressing are applied each year in monthly applications.

The PGR Primo Maxx is applied every 2 weeks in season, mixed with a small amount of foliar N. After being cored, Bent was over-seeded broadcast style in mid-September. Summer mowing height is usually 3mm, but this season it has remained at 4mm due to the high rainfall and limited use of vibrating rollers. This year, Liquid Air was applied after coring and also on occasions when aeration couldn't take place due to the wetness of greens surfaces: this being a trial otherwise this program has been consistent for the past 2 years.'

#### Results to date

So after 2 years have the objectives been achieved? James concludes; 'The greatest difference has been the reduction in OM content, falling from around 35mm to 20mm,

this in spite of a very wet summer. Root depth has generally increased, with most greens supporting a root depth of between 60 and 70mm. Disease pressure is still a threat but not as virulent as before and the number of fungicide applications have been reduced to 5, with most now being preventative to ward off Anthracnose and Fusarium as opposed to being curative.

Whether or not this number of applications is still required remains to be seen but with memories of severe scarring in the past, perhaps I'm erring on the side of caution.

There may be no hard evidence to vindicate the use of compost teas, nevertheless the health of the greens have improved and more progress has been made since 2010 than in the previous decade so something must be working.'

James adds, 'the next step is to take measurable data of bacteria counts before and after and to compare greens with fairways and that is on the agenda for my next meeting with Symbio.

I aim to make a few tweaks to the current program by introducing Phosphite into the tank mixes during the latter part of the year and to increase the amount of top dressing by 20 to 40 tons. That apart, I am satisfied that the investment made in applying composted tea has led to a steady improvement and will help Long Ashton to become more sustainable in the future.'

#### Summary

A healthy living soil with a good microbial population will give the best opportunity for growing and managing fine turf. That is without doubt. What is in doubt is whether adding additional soil microbes in whatever form to a greens root-zone will help to achieve this objective for a sustained period of time. Those who have used a compost tea program for a number of years certainly think so and appear to be seeing a reduction in disease and lower requirements in fertiliser. What needs to be established is a measurable threshold of soil bacteria on a green whereby it can be accurately measured to indicate sufficient numbers or deficiencies. It would also help to compare these numbers on the same greens 1 day and 7 days after compost tea was applied in order to verify that an improvement in numbers had taken place. There are numerous other questions to answer, too many to list in this article but there is an overwhelming need to have greater clarity supported by measurable facts and figures. Only when this is achieved and hopefully vindicated is there likely to be a concerted move away from current greens management and less reliance on plant protectants.

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BELOW: The green profile

