

TURF TALK

Spring/Summer 2016

RENOVATION SPECIAL

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DEEP DOWN FOCUS ON INFILTRATION

Renovation work requires a greater emphasis on water infiltration and drainage, if golf clubs are to tackle the root cause of problems with greens' playability and consistency, according to Paul Woodman, STRI Agronomy Services Manager.

"Currently, by far the greatest focus is typically put on managing organic matter and moisture, with passing reference to surface infiltration and overall playing quality," he says. "But, for the most part especially on soil based greens, that's just tackling the effects of underlying problems. Changes in weather conditions and Club demands for less disruptive management practices, are only going to make it worse," he warned.

In the future, Paul suggests that efforts with renovation practices should also be looking to address soil profile improvements, along with doubling initiatives to influence organic matter accumulation. "Where we can get both those elements right, it will simultaneously resolve much of the problem with soil moisture retention and poor root growth, to create consistently firmer and smoother playing surfaces demanded by today's players."

Unless the underlying causes of the thatch build-up are resolved, it will be an ongoing annual battle that will be both costly and disruptive for Clubs and players.

"It is common practice for the problem to be addressed from the top-down, when we possibly need to also be looking at it from the bottom-up," he advises. "Aeration and opening up the surface is fine, but if there's nowhere for the water to go, that's going to cause a problem. It demands a combination of practices aimed at the top, middle and bottom of the soil profile to fundamentally resolve issues."

"With the right plan, implemented at the right time, renovation is the key to improving playability and player satisfaction."



CLEAN RECOVERY

Renovation creates a triple-whammy of effects that can trigger damaging disease outbreaks, which could undo all the investment in time and money that was intended to improve turf quality, warns Daniel Lightfoot.

Initially the renovation process puts immense abiotic stress on turf plants. Secondly, disturbance of the surface and thatch releases infective spores, and, thirdly, the abrasive mechanical process of renovation damages leaf surfaces and makes them more prone to infection by disease.

However, Daniel points out that it is possible to tip the scales in favour of success with an effective Integrated Turf Management approach. That includes nutrition and irrigation, but also having a long-term view to renovation - where possibly more invasive operations now will enable more flexible and effective measures, causing less disruption, in the future.

Part of that ITM approach that promotes turf health should include fungicide application specifically targeted to help the plant through the recovery process faster and a quicker return to good playability.

It's important to know how the fungicide works, and its potential to help in different situations, says Daniel.

HERITAGE MAXX HEADWAY	MEDALLION TL
Systemic	Contact+
<ul style="list-style-type: none"> Gets protection inside the plant Continuously replenishes protection at damaged points Long-term protection 	<ul style="list-style-type: none"> Targets spores in thatch Reduces inoculum risk Protects the leaf surface

"I would always advocate Headway is especially suitable for pre-renovation application. The propiconazole element is exceptional at preventing disease getting into the leaf, whilst the azoxystrobin also triggers the plant's production of stress-busting free radicals and enhances the photochemical efficiency of the leaf. That makes it fundamentally healthier to recover faster, and quickly looks better."



FEED TO GET TURF GOING

Nutrition to get turf actively growing before renovation programmes helps with faster recovery and develops stronger turf, better able to withstand the stresses of summer, advises ICL Technical Manager, Henry Bechelet.

"Getting the initial nutrition right to support early spring growth is crucial before surface preparation operations, such as top dressing," he says.

From the company's trials, at STRI and at Scarcroft Golf Club, near Leeds, last year, the most notable treatment reaction was the almost instant colour boost, to 6.5 (good), triggered by the Greenmaster Prolite 'Cold Start'. The visual response from the other treatments was minimal in the first seven days.

All the fertiliser treatments had a beneficial impact in preventing the deterioration recorded in untreated areas, but it was only the 'Cold Start' which created the significant improvement in both colour and quality, with turf density increasing to 5 over the month.

By early April, it was clearly a late spring, with soil temperatures still stubbornly low and Growing Day Degrees only half the seasonal norm. "Both the 'Cold Start' and Greenmaster Prolite

'Turf Tonic' - which were the two with the conventional sulphate of ammonia N sources were performing exceptionally well," recalls Henry. "But the conditions were still too cold for the soil bacteria to work on the slow release N fertilisers to really kick-in."

He adds that when the trial green was top dressed, the differences were even more apparent. Whilst the 'Cold Start' and 'Turf Tonic' treated plots quickly grew up through the sand dressing, the other treatments evidently sat there, slow to get going and recover. That might change the whole approach to spring top dressing, suggests Henry.

Read the full details of Paul, Daniel and Henry's trials and decision implications on GreenCast



SEE PROBLEMS AHEAD

Daniel Lightfoot also urged greenkeepers and turf managers to look at forecasts for disease risk and weather windows over the renovation timing, and to adapt accordingly. "GreenCast forecasts are specifically designed for turf management operations, including soil temperatures, local weather and disease risks. Better timing of all these elements could help achieve more successful renovation operations this season."



TIMELY TIPS FOR CORE AERATION

Core aeration results in a long-term gain for turf health by reducing thatch and organic matter levels, relieving soil compaction, increasing soil oxygen levels and stimulating healthy new grass growth.

10 tips to help achieve the best results include:

- 1 Core aeration when the turf is healthy and actively growing will ensure greens heal and recover as quickly as possible.
- 2 Clean cut holes help turf to make a quicker recovery. Ensure your aerator has been well maintained, serviced and set-up.
- 3 Make a test run a few days before aeration is scheduled – to check it's working properly and give time for adjustments if required.
- 4 Don't let tines get too worn. Monitor the equipment throughout the aeration process, so that the tines can be changed promptly if necessary.
- 5 Choosing the right size and shape of tine for the ground conditions is the key to effective aeration. Keep aware of new designs and developments.
- 6 The right soil moisture content is an important factor. Very dry conditions can limit penetration and hole depth that is slow to recover. Wet conditions could cause smearing of holes, or compaction from heavy machinery.
- 7 For undulating greens a narrow aerator will follow contours better and maintain more even aeration depth, compared to a wider machine.
- 8 Core deflectors fitted in front of tyres eliminate running over pulled cores from the previous pass, which makes the clean-up process easier after aeration.
- 9 In a perfect world, dry top dressing material and a dry surface will ensure even and complete filling of aeration holes. Be prepared to make a second, lighter application within a few days to top off the holes and maintain a smooth surface.
- 10 Roll the greens for one or two days after aeration and top dressing, to keep the surface smooth and improve mowing quality. Then irrigate and fertilise a few days later to stimulate turf recovery.

MAINTAINING TURF HEALTH

Over five years intensive efforts to remove thatch and organic matter from the greens at John O'Gaunt Golf Club is now paying real dividends for turf health and playing surface quality.



The Bedfordshire Club's 36-hole Course Manager, Nigel Broadwith, reported it has taken some disruptive decisions in the past, but now with a less intrusive 'little and often' approach he can better balance maintaining turf quality with the demands of players.

Working closely with the Club's managers he's now allocated two maintenance days a month on each of the two courses, when visitors are limited although members can still play.

In spring, the green keeping team starts off with a vertidrain, typically down to 250/300 mm, to relieve compaction and deep aerate the soil profile. This is immediately followed with an 8 mm micro core, to further aerate the surface and enhance percolation. Top dressings are applied to smooth the surface,

Through the growing season he'll look to light verti cut twice a month, to around 3/5 mm, to keep on top of organic matter and stand up the turf for a cleaner cut. Once a month in summer

they will also take the opportunity to aerate using a 6 mm solid micro tine passes. Light top dressings are applied as and when needed to keep surfaces free-draining and firm.

In the autumn Nigel had been committed to a deep vertidrain, coupled to deep scarification to 25 mm or more. However this past autumn, the reduced organic matter burden has enabled a 20% less invasive process – with reduced impact on the turf and the surfaces. He also over seeds, with a bent/fescue mix, and applies a heavy top dressing.

"Historically, the Club had suffered from high levels of organic matter – with all the associated problems of soft surfaces, water holding in winter, dry patch in summer and disease flaring up all too often," recalled Nigel.

"Taking regular core samples, we know we've now got it down to acceptable levels, but want to manage it to keep it at that point for turf health and playability."

Nigel believed one of the keys to success with the autumn renovation programme has been the application of a fungicide 10-days prior to the scarification. "The combination of physical damage to the turf leaf and the stress imposed on the plant inevitably increases the risk of disease outbreak, even if the weather isn't especially conducive to disease," he advised.

"This first application of the winter fungicide programme is invariably the most important to start the season

clean and green," added Nigel. "The combination of healthier turf and reduced disease pressure has meant we've been able to successfully prevent disease outbreaks right through the winter – with a significantly reduced fungicide programme compared to what had been used in the past."

With generally warmer autumn growing conditions prior to renovation, he has relied on Heritage Maxx for the initial application – getting the systemic protection into the leaf and active movement of the fungicide to any damaged leaf points during renovation.

There is also an option to use Medallion TL in the pre-renovation slot, where activity on disease pathogens on the leaf and in the thatch could help to further reduce disease infection pressure at a susceptible time for plants. Coming into spring, the multi-active Instrata has proven especially effective at targeting disease activity when the winter fungicide programme has been running out of steam.

"With better turf retention over the winter we've not had to resort to forcing growth in the spring to encourage recovery of the surfaces," highlighted Nigel. "The transition from winter to spring has been far better for consistent playability across both courses."



Read the full details of Nigel's renovation programme and results on GreenCast.



John Deere's Aercore 800 pedestrian aerator has the option to simultaneously aerate and verticut greens, enabling significant time and labour saving.

QUALIBRA AID FOR SEEDLING GROWTH



Germination and establishment of turf seedlings could be enhanced by the use of Qualibra wetting agent before or at the time of renovation, according to results on new STRI trials.

The research, investigating the effects of hydrophobic rootzones on seedling establishment, clearly demonstrated that all grass species tested germinated faster and established stronger with the Qualibra treatments, reports Syngenta Technical Manager, Marcela Munoz.

The trial used commercial sports turf seed of ryegrass, fescue and bentgrass species, sown into rootzone sprayed with Qualibra, at different rates, either five days before or at the time of sowing - compared to untreated.

STRI Study Director, Tom Young, comments:
"The germination of perennial ryegrass, fescue and bentgrass was significantly quicker for all Qualibra treatments compared to untreated controls.

"Also, the percentage coverage of pots with all grass species was significantly increased in all Qualibra treatments," he adds. Further assessment of turf height and growth (calculated from clippings), highlighted the continued extra vigour and strength of seedlings from the treatments for over 30 days of study after sowing.

Rate response

Marcela Munoz highlights the research confirmed Qualibra treatment at the equivalent of 20 l/ha gave the best results in terms of long-lasting performance, but that a half rate of 10 l/ha did achieve significant short term boost to seedling germination and establishment.

Monitoring of rootzone moisture in the trial 'consistently showed a positive dose response to Qualibra application, with greater levels of moisture observed as Qualibra application rate increased', according to the report.

"What we have seen is that Qualibra is extremely effective in holding moisture in the root zone that can aid seed germination and allow it to establish more successfully, specifically in hydrophobic rootzone conditions," advises Marcela.

"That could have hugely beneficial implications for renovation programmes and helping to get faster recovery and coverage on greens and sports turf.

"Importantly, the unique combination of penetrant and polymer in Qualibra ensures that the surface stays firm and dry – which is good for playability – whilst seedlings and existing turf plants are well placed to make best use of any irrigation applied, with the desired soil moisture held in the root zone."

Results of the STRI seedling germination research include:



GERMINATION – 18 days after sowing

Treatment: Qualibra @ 20 l/ha five days before sowing

Bentgrass – untreated	Bentgrass – treated	% benefit
1.2	3.6	+ 200%
Ryegrass – untreated	Ryegrass – treated	
1.6	5.6	+ 250%

Germination scale 1-10



HEIGHT MM – 32 days after sowing

Treatment: Qualibra @ 10 l/ha at sowing

Fescue – untreated	Fescue – treated	% benefit
22	39	+ 77%
Ryegrass – untreated	Ryegrass – treated	
32	50	+ 56%



COVERAGE % – 49 days after sowing

Treatment: Qualibra @ 20 l/ha five days before sowing

Fescue – untreated	Fescue – treated	% benefit
17	51	+ 200%
Ryegrass – untreated	Ryegrass – treated	
23	46	+ 100%

MANAGING BLIGHT

In another STRI trial seedling establishment, investigations into fungicide application prior to over seeding had demonstrated Heritage Maxx and Headway treatments appeared to suppress seedling blight occurrence. Treatment had shown an increase in bentgrass germination and survival. Further trials are now planned to see how this seedling protection might potentially be utilised for golf and sports pitch renovation.



OLYMPIC LEGACY RESTORED

It took the STRI two years of intense work to prepare Greenwich Park for the London 2012 Olympics equestrian event, and they've spent a further three years successfully restoring and enhancing the unique parkland site, reports Richard Stuttard, Principal Planning Consultant.

Greenwich Park is the most historic of all the Royal Parks, dating back to Roman Times and being enclosed since 1427. The 74-hectare site is an oasis of green in what is one of the most densely populated areas of the UK.

The International 4* cross country track developed was a great success, providing the necessary challenge and spectacle without damaging a single tree in the park, however it did have to pass through certain areas of acid grassland.

The course had to be sown with perennial ryegrass and heavily maintained, to create a strong and dense sward. The challenge was to revert this to its original state within three years. Crucially, this could not be done via a turf strip and re-seed method as, for the Royal Parks, it was crucial to keep site disruption and visual impact to an absolute minimum.

Initially, works involved a deep scarification of the area to rip through the ryegrass sward and create gaps. A spiked roller

was then taken across the area followed by the liberal application of 'green hay' from existing grassland, which dropped its natural seed as it dried. Within a few months small amounts of bent and fescue grasses were beginning to appear within the sward, but it was clear that a more intense approach would be required to remove and replace the ryegrass sward.

The second stage of our pre-approved plan was to apply the ryegrass specific graminicide, Rescue. Applied in spring 2013 to a trial area the Rescue proved highly effective - killing the majority of ryegrass within three to four weeks. This was followed by a light scarification, to remove the decaying ryegrass and the site was then sown, this time with pure seed hand collected from around the park. The operation was repeated in the autumn, with further seed applied.

The result was extremely pleasing, with fescue and bent dominating the sward and there being almost no indication

that a cross country course had ever been on the site. Following this success, an identical programme was rolled out across all the target areas through 2014.

Late spring and autumn seed collections ensured all represented species were collected and applied and, through the autumn, additional localised applications of Rescue were applied to more stubborn areas.

By 2015 perennial ryegrass had all but disappeared from the restoration site and the focus was on further seed collection and application, purely to bolster the bent/fescue populations that were present.

Our work at the park was subject to independent review by the London Wildlife Trust, who attended the site during operations and provided periodic progress reports. Their reports concluded that not only has the restoration programme brought the sward back to its pre-Olympic condition, but that the sward is in fact of higher biodiversity value than before.



STRI

Read the full story of the STRI Greenwich Park restoration project on GreenCast.

LITTLE BEAUTY

Liverpool has, ecologically speaking, so much more to offer than just Beetles. Lee Park Golf Club, finalist in this year's Operation Pollinator Awards, is a sanctuary in the City for birds, animals, insects and wildflowers.

Lee Park covers just 90 acres within a largely urban environment, a few miles east of the city centre. Yet it has become a true green heart of the area and an extremely valuable wildlife haven.

With great design and cleverly making use of all the available space, it has fitted in a host of ecological features, alongside an award-winning 18-hole course, playing at over 5950 yards.

The work of Club Manager, Steve Settle and Head Greenkeeper, Jon McMullen, and team - along with the close involvement of a number of members - supports a wide variety of habitats, from expanses of grasslands, wildflowers and water features, to pockets of mature woodland and plantations.

The ecological work can also bring benefits for turf management, reported Jon. "Behind the 9th green, for example, clearing ground cover and removing self-seeded trees to open up the woodland canopy, has also improved light and air flow to the green that reduces disease risk." It's also allowed natural bluebells, which had laid dormant, to flower, along with newly planted wildflower areas.

The team has also focussed on managing the water features around the course. Bumblebees and butterflies abound in the surrounding wildflower areas. Diverse wildlife habitats for birds

and bats have been created quickly and cost-effectively. Fine grasses have been encouraged and actively managed around tees; bringing environmental gains whilst saving costs with reduced demand for mowing.

And the team achieve the outstanding environmental work alongside gaining exceptionally high accolades for the course's playability.

STRI's Alistair Beggs, consultant to the R&A's Championship Committee, described Lee Park's putting surfaces as: "currently among the best, if not the best, parkland greens I have seen... the smoothness is excellent and at Tournament Standard."

Steve Settle added that the club views its award-winning environmental work as an important part of its contribution to the local community and, with a relatively small site, the ecological features add an extra dimension for players.



Judges Praise

Operation Pollinator Awards judge and STRI Ecology Consultant, Sophie Vukelic, added: "It is so encouraging to see that Operation Pollinator has been taken on board by so many golf clubs around the UK.

"I believe it really highlights how the golfing industry has changed over the past decade, with much more emphasis on the ecological value of golf courses and their ability to provide a wildlife resource within the wider landscape," said Sophie.

"Trevor and the team at Lee Park have pioneered so many great ideas, which others can integrate into their course management. It is so important that we inspire others to play a part in conserving vitally important insects through creating the wildflower habitats promoted by Operation Pollinator."



AWARD WINNERS

Lee Park Golf Club was a finalist in the Operation Pollinator Award 2016, alongside the overall winners, Carnoustie Golf Links, from Perthshire on the east coast of Scotland. Whilst extremely different in terms of size and profile, the Award demonstrated the common interest in environmental management, and the immense ecological contribution that every golf club can make on any scale.

Find out more about the environmental experiences of Carnoustie's Craig Boath on the GreenCast website and in the next issue of Turf Talk.

RECORDS ON HAND

A survey of BIGGA greenkeepers and course managers has clearly identified the need for the new technology for spray record keeping.

With more than 150 survey respondents, over 85% declared that they would use a smart phone or tablet App to compile their spray records – with 35% wanting to adopt it straight away and half looking to evaluate and integrate the information.

Key findings from BIGGA Survey – Your chance to shape the future of spray record keeping

- Over 85% would use a mobile-device app for record keeping
- 90% of operators have access to smart phone technology on the course
- 78% don't find existing recording systems quick or easy
- Manual book or paper files are used by 96% of courses
- Over 80% of operators make up tank-mixes

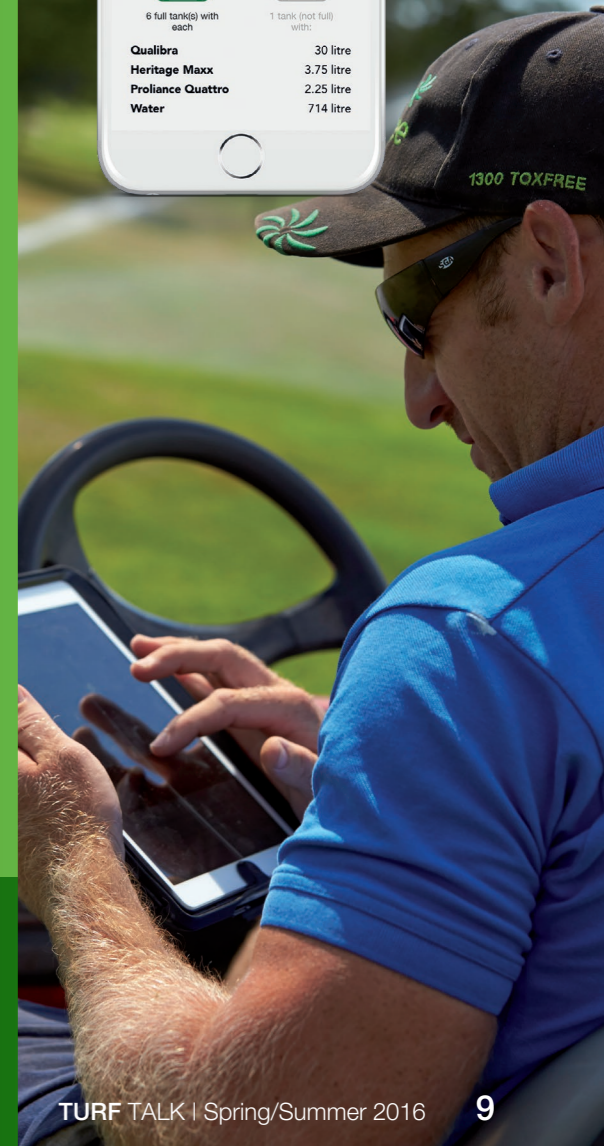
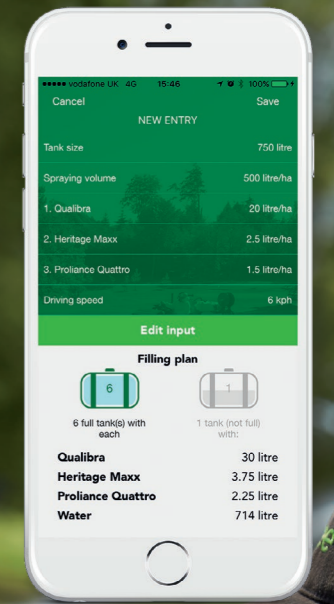
Syngenta Greencast Manager, Caroline Carroll, highlighted the survey identified that the majority of courses use a combination of record systems, with duplication of manual sheets, spray

books and databases. "Being able to consolidate records into one place will simplify the process and make the information more useable.

"Good record keeping can be invaluable in evaluating what worked most effectively under specific conditions for an individual course or facility – and enable better decision making in the future," she advised.

Caroline added the survey had revealed over 80% of operators are making up tank-mixes for application, with half of them doing so frequently or for every application. "With many using more complex tank-mix combinations to save time and money for applications the guidance provided by the Greencast Turf App will prove invaluable."

Importantly, the Greencast Turf App would ensure greenkeepers and their Clubs would be compliant with legal obligations. The technology enables the App to be updated to future proof record keeping for turf.



Look out for the launch of the Operation Pollinator Awards 2017 – it's easy to get involved and you could win the due recognition the industry deserves.

Download the GreenCast Turf App for FREE now.



Go direct to the App Store or Google Play, or follow the links from GreenCast.



APPLICATION TOP TIPS

James Wright of the University of Leeds Estate Services was the UK's top operator using a tractor mounted sprayer, in the Amenity Sprayer Operator of the Year Awards.

James and his team of just four others look after the full range of pitches, including natural turf and artificial surfaces, on the 40 hectare site at the University's Sports Park Weetwood. It provides playing fields for more than 30,000 students, offering a range of sports including football, rugby, lacrosse and cricket.

James' Top Tips and experiences for accurate application and safe spraying practice include:

- Have your sprayer tested for the NSTS.
- Select appropriate nozzles for different targets and to minimize drift.

- A clean water tank mounted the sprayer means operators can wash off gloves if they have handled nozzles during spraying, for example.
- Carry protective equipment and a spray kit in a locker on the sprayer.
- A walk-in fully bunded chemical safe keeps products secure.
- All the team are briefed how to use a spill kit, should it be needed.
- A waist height induction hopper on the sprayer is safe and easy to use.
- The rinsing jet in the hopper gets cans really clean.
- All valves on the sprayer are clearly labelled.
- Foam blob markers enable faster and more accurate application.
- A tape measure is invaluable for checking sprayer level mounted on the tractor.
- Boom height indicators instantly check it is level and operating at the right height.



See more of James' spraying set-up at Leeds University, and practical details of all his tips, on GreenCast

Love.golf

TRY IT LOVE IT

love.golf, a new female group golf coaching programme, supported by Syngenta, launched this spring.



Following a successful trial with 10 PGA Professionals and almost 100 new female golfers in autumn 2015, an extended pilot programme at up to 50 golf clubs and courses will be developed during 2016.

The six-week course is based on the teaching principles of award-winning PGA Professional Alastair Spink. He's helped introduce more than 300 women to golf at Fynn Valley Golf Club in Suffolk.

"**love.golf** is very different to traditional golf coaching," explains Alastair.

"It's about learning together and getting out onto the golf course as soon as possible. It's not spending hours hitting golf balls on the range," he says.

"The teaching approach is also very different with coaches avoiding lots of technical interventions and instead offering on-course guidance and encouragement.

"The market research we conducted during the love.golf pilot programme shows that the women who participated said they enjoyed the sense of togetherness, the relaxed format and the unexpected fun. They felt their confidence was boosted by the experience."

Why attract more women?

love.golf is being supported by Syngenta as part of the company's ongoing commitment to invest in golf from the ground up. That includes the development of innovative turf products, environmental sustainability and increased participation.

Syngenta's market research report, The Opportunity to Grow Golf: Female Participation showed 5% of active women in the UK were 'very interested in golf,' representing a significant business opportunity for golf clubs and courses, reports Syngenta Markets Manager, Rod Burke.

While the six-week programme is delivered by the PGA Professional, who also takes the majority of the coaching fees, research from the pilot shows that clubs benefit with customers buying food and drink, pro-shop sales, course fees and, ultimately, joining clubs, he adds. "Attracting women has proven to bring along the whole family.

"With falling membership and participation at many clubs, customer-centric venues offering a welcoming, friendly environment and inclusive opportunities for friends and family are better positioned for long-term financial health."

For more information and to watch a video, visit: www.love.golf





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www.greencast.ie

Syngenta UK Ltd. Registered in England No. 849037.
CPC4, Capital Park, Fulbourn, Cambridge CB21 5XE
Email: golf.syngenta@syngenta.com
Web: www.greencast.co.uk / www.greencast.ie

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Tel: 01473 201100 **Email:** prof.sales@icl-group.com
Web: www.icl-sf.co.uk