



Making great sport happen



# LADYBANK GOLF CLUB

## Advisory Report on the Golf Course incorporating the STRI Programme

Report Date: 24<sup>th</sup> September 2020  
Consultant: Gary Smith



## Ladybank Golf Club

Date of Visit:	Tuesday 8 <sup>th</sup> September 2020
Visit Objective:	Review the condition of the golf course, take objective measurements from indicator greens, and establish ongoing maintenance practices.
Present:	Mr Colin Powrie – Course Manager Mr Mike Ewan – Dep. Course Manager Mr Brian McSkimming – Facilities Convenor Mrs Myrtle Gilbert – Ladies Captain Mrs Margaret Hair – Greens Committee Mr Gary Smith – STRI Ltd
Weather:	Dry & Sunny. 16°C. Rainfall @1mm 7 days pre-visit.

### Headlines

- Ladybank golf course is in very good condition and has coped amazingly well (albeit with a few obvious pressure points) with the recent environmental and unique lower input challenges the COVID-19 pandemic has provoked.
- The reduction in maintenance team man hours worked has had an effect on the usual attention to detail at the golf club, and the aim should be, to stabilise and return to the pre-Covid numbers to continually improve on the benchmarked agronomic standards and high plant health status at this acclaimed golf club.
- The greens are exhibiting an increase in bentgrass populations, a visible and measurable quality improvement since the last STRI visit.
- The average moisture content of the greens rootzones in the 0-40mm horizon is 24%. A reflection of the recent weather conditions and open structured free draining rootzone.
- Firmness was within target at an average of 101 gravities with the greens feeling firm underfoot despite the increasing surface organic matter accumulations.
- Average Organic matter levels are above target in the 0-20mm horizon and within target in the 20-80mm horizons. Maintenance inputs are continually carried out to remedy this situation.
- Surface smoothness was in target, an exceptional result in the recent lower input regime.
- Trueness was also within target, however the small but visible volumes of seeding *Poa annua* without doubt influenced the trueness results.
- Pathogenic Basidiomycete activity (Superficial Fairy Ring disease), Take all patch and Leaf Spot disease as a secondary infection was noted on several surfaces was under controlled management with no visible activity at the time of the visit.
- Several greens showed evidence of *Poa annua* seed head activity, another direct result of recent weather conditions.
- Maintenance inputs have been restrained of late due to the restrictions on essential maintenance and staff numbers. Grooming, surface brushing and verti-cutting have not taken place to the capacity normally associated with Ladybank Golf Club.
- The introduction of Compost teas has proven beneficial in its primary year and the aim should be to expand its use more often on greens and surrounds in future.
- Chemical analysis shows pH average to be pH 5.1 and is within target albeit at the lower end of the scale. Aim to achieve an increased pH between 5.5-6
- The bunker improvement plan is showing a great aesthetical value to the golf club and future proofing the golfing experience at Ladybank Golf Club.
- Shade from many trees and coppice are causing unnecessary strain and potential deleterious health issues on several sections of fine turf.
- Maintain the current frost policy at the Club and review once the future tree management plan is proving beneficial to the fine turf sections.
- Further develop the woodland management proposals currently in discussion at the Club.

## Key Actions

- Continue with sand top- dressing at current target levels (minimum 120 tonnes per annum) in a little and often approach throughout the calendar year.
- Introduce increased amounts of top dressing onto the surrounds and approaches and newly constructed run-off sections, where possible.
- Continue and increase the use of surfactants (wetting agents) on the greens and other fine turf areas such as greens surround and approaches.
- Increase the number of brews from the compost tea to between two – three brews per individual brewing session. This weakening solution should be used on approaches, surrounds and tees.
- Promote the use of Mycorrhizal fungi on greens to increase the absorptive area acting as extensions to the root system.
- As weather patterns allow, continue with the intensity and regularity of sward refinement practices, such as regular brushing and verti-cutting or grooming.
- Consideration of the Hydroject or Air2G2 aeration systems is encouraged to open and increase the pore space in the mid-lower horizons of the greens rootzone.
- Confirm this year's frost policy "status quo" at your earliest opportunity.
- Agree and establish the woodland management strategy for season 2020/21 and beyond, as soon as possible.

## Objective Measurements

Measurement	Average	Target Range
Soil Moisture (%)	24% (range 19-33%)	15-30%
Hardness (Gravities)	101 Gravities (range 91-117g)	85-110 g
Smoothness (mm/m)	17.6mm/m	<25 mm/m
Trueness (mm/m)	7.8mm/m	<10 mm/m
Green Speed	10ft 3in	8ft 6in - 10ft 6in
Organic Matter 0-20 mm (%)	10.7%	4-6%
Organic Matter 20-40 mm (%)	2.9%	<4%
Soil pH	5.1	5.0-6.0
Phosphate (P <sub>2</sub> O <sub>5</sub> )	7 mg/l	>10 (mg/l)
Potassium (K <sub>2</sub> O)	56 mg/l	>30 mg/l

## Photo Observations and Comments



Figure 1: Ladybank Golf Club is presented to the highest standards current challenging conditions allow.



Figure 2: The greens are in superb condition and exhibit an increased Bentgrass sward composition since the last STRI visit.



Figure 3: The rootzone is evident of recent and historical top-dressing applications producing a friable free draining rootzone. However, increasing Organic matter volumes needs further remedial actions.



Figure 4: Basidiomycete fungi (Superficial fairy ring) activity and historical take all patch are evident on several sections of the golf greens and surrounds.



Figure 5: Leaf spot disease has expressed as a secondary infection on weaker sections of grasses, generated by the Basidiomycete fungi activity.



Figure 6: Some section of greens surround is demonstrating a weakening sward, due to excessive traffic from both golfers and machinery.

## Photo Observations and Comments (cont.)



Figures 7 & 8: Shade from tree canopies around the golf course will need a long-term strategy aimed at reducing shade through canopy management or removal.



Figures 9 & 10: Shade from tree canopies around the golf course will need a long-term strategy aimed at reducing shade through canopy management or removal.



Figures 11 & 12: Shade from tree canopies around the golf course will need a long-term strategy aimed at reducing shade through canopy management or removal.

## Photo Observations and Comments (cont.)



Figure 13: Tree canopy density is having a massive deleterious effect on natural pathways and ecological diversity within the golf course.



Figure 14: The new bunkers and run off sections are architecturally superb and compliment the natural heathland characteristics of the golf course.



Figures 15 & 16: The ribbing effect visible on several of the newly constructed sections will require remedial sand top-dressing to level and firm the underlying construction.

## Recommendations

### Greens

- Top dressing inputs should be targeted at a minimum 120 tonnes per hectare on the Greens in a little and often approach throughout all months of the calendar year. This approach will stabilise and further assist in dilution of the rising organic matter levels whilst improving the percolation rates of applied irrigation and falling rainwater.
- Renovation works carried out this autumnal period should include; hollow tine the greens with an 8-10mm diameter tine at 35mm spacings to a depth of minimum 20mm. Apply a sand top-dressing to ensure that the holes are filled to the surface level through drag matting or a sweep-n- fill style brush if available. Repeat this operation in the early part of 2021.
- Follow this operation with a double pass of a scarifying unit to remove organic material in the immediate surface (5-15mm) of the green profiles (subject to weather conditions) and replace with sand. This is an ideal opportunity to incorporate an inter-seeding with a Browntop bent seed. Repeat this operation in the spring as both operations, plus the inter-seeding will accelerate the recovery process.
- Aeration is carried out regularly and it is evident, Sarel rolling on all greens should be implemented at twice monthly intervals throughout the year (subject to weather conditions) to maintain the superior quality witnessed on the greens surface area, likewise the deeper solid tine aeration, Verti-Drain type operation using an 12mm solid tine at least twice annually should assist in deeper and more efficient percolation through the rootzone, alongside a follow up top dressing application.
- The use of the Hydroject system should be adopted if these very dry weather patterns persist, likewise the Air2G2 would provide excellent aeration results year-round in view that the tine depth is varied on each application. A minimum 4-6 Air2G2 usages per annum would be advisable.
- The current Surfactant- wetting agent (ProWet evolve), nutritional and bio-stimulant inputs are in general structured and robust and should be continued (with the addition of some added Phosphate) throughout the off-season months, facilitating healthy and robust grass plant swards on all fine-turf areas of the golf course.
- The use of Primo-Maxx (Trinexapac-ethyl) or a similar Plant Growth Regulator applied at monthly intervals on the greens is encouraged through the growing season to positively influence sward texture and green surface consistency.
- Increase the volume of Compost tea applications per compost tea brew, aim to brew the composted material at least another twice by using a small amount of molasses or seaweed as a food source within the brewer. Both the second compost tea brew and potentially the third will have positive microbial biomass although in smaller quantities as each brew is developed. This compost tea brew should be added to either the greens, green surrounds and approaches or any other fine turf sections.
- Additional use of the Symbio Liquid air product to improve and encourage stimulus of microbial activity, will ultimately help to increase the release of Oxygen, and assist the microbial breakdown of thatch. This will ultimately aid and improve percolation rates.
- The use of Fulvic acid (5-10lt per hectare) in the off-season will prove valuable to the greens overall. More especially at springtime where greens are showing signs of performing better earlier in the playing season. Fulvic acid enhances cell division and elongation. Root growth is magnified with obvious benefits (so long as moisture and soil structure are appropriately managed) it also increases the plants oxygen uptake capacity with an associated increase in chlorophyll production and the permeability of plant membranes which improves the uptake of all nutrients.
- The greens should be inoculated with Mycorrhizal fungi. Mycorrhizal Associations/Mycorrhizal fungi form a mutualistic symbiosis with fine grass plants causing the fungal hyphae to extend the root systems and allow the roots to contact a greater volume of the rootzone which increases the solubilization of nutrients such as phosphorus and the intrinsic water use efficiency.
- The addition of a Calcium based material should be considered to raise the pH to a more desirable pH5.5-6.

## Green Collars, Surrounds and Approaches

- All fine turf sections immediately adjacent to the green should receive the exact maintenance as the green surface area.
- Sward separation is evident on several of these areas and planning to reduce the invasion of unwanted coarser grasses due to the pressure of machinery and foot traffic is required.
- All new sections of run off require frequent top-dressing going forward to allow a firming of the surface and remove the cut ribbing effect evident at the Club. A softening of some of the more acute angles and difficult to cut sections will also be facilitated with this approach. Aim to top-dress with the same frequency as the greens.

## Woodland Management

- The recently circulated plan for tree removal is an excellent start to the overall strategy at Ladybank Golf Club for the coming years and is to be supported. It is more apparent this year how important it is to have a longer-term view to an overall tree management plan, which responsibly identifies areas and strategies for selected removal/thinning plan season by season. Improvements need to take place as single specimens and numerous coppice are having a deleterious impact on the quality of fine turf sections and in some cases the potential to interrupt the golfing experience at the Ladybank Golf Club.

## Frost Policy

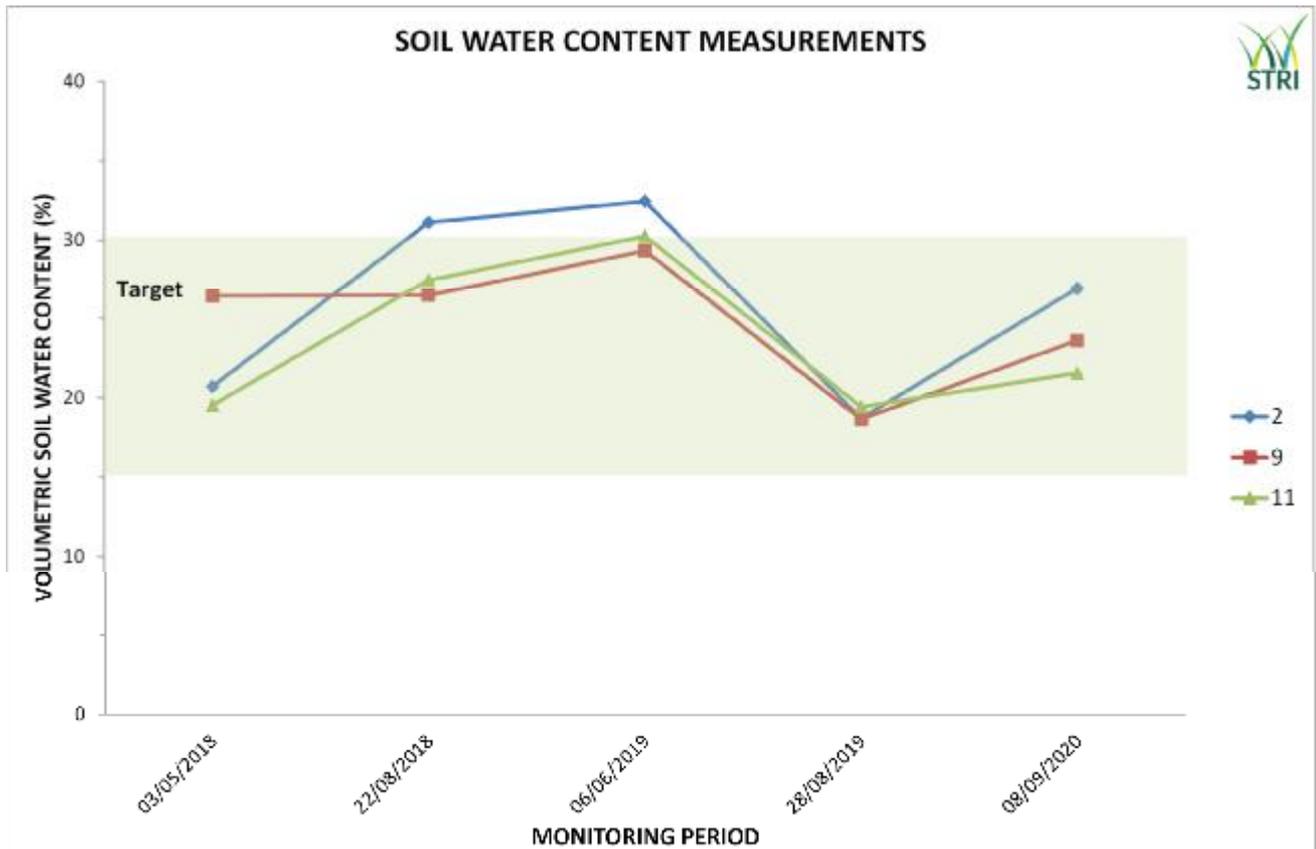
- Further discussion took place on how Ladybank Golf Club should approach the opening or closure during periods of frost and the position remains the same. There is no general rule for all Clubs as the variables in any decision-making process vary greatly from venue to venue. It is suggested that Ladybank members and visitors should want to protect the unique heathland characteristics that bring them to this eminent venue. Every precaution should be in place and every decision made should be to protect the sward consistency and sward composition on all sections of the course and without doubt the heathers alongside other flora and fauna.
- Ladybank Golf Club is framed with many specimens of tall trees which shade several of the finer turf areas in times of frost. This very much slows the process of thawing and the current protective stance the Club adopt should be continued to allow the natural and very much unique characteristics of the golf course to thrive unhindered.

Signed

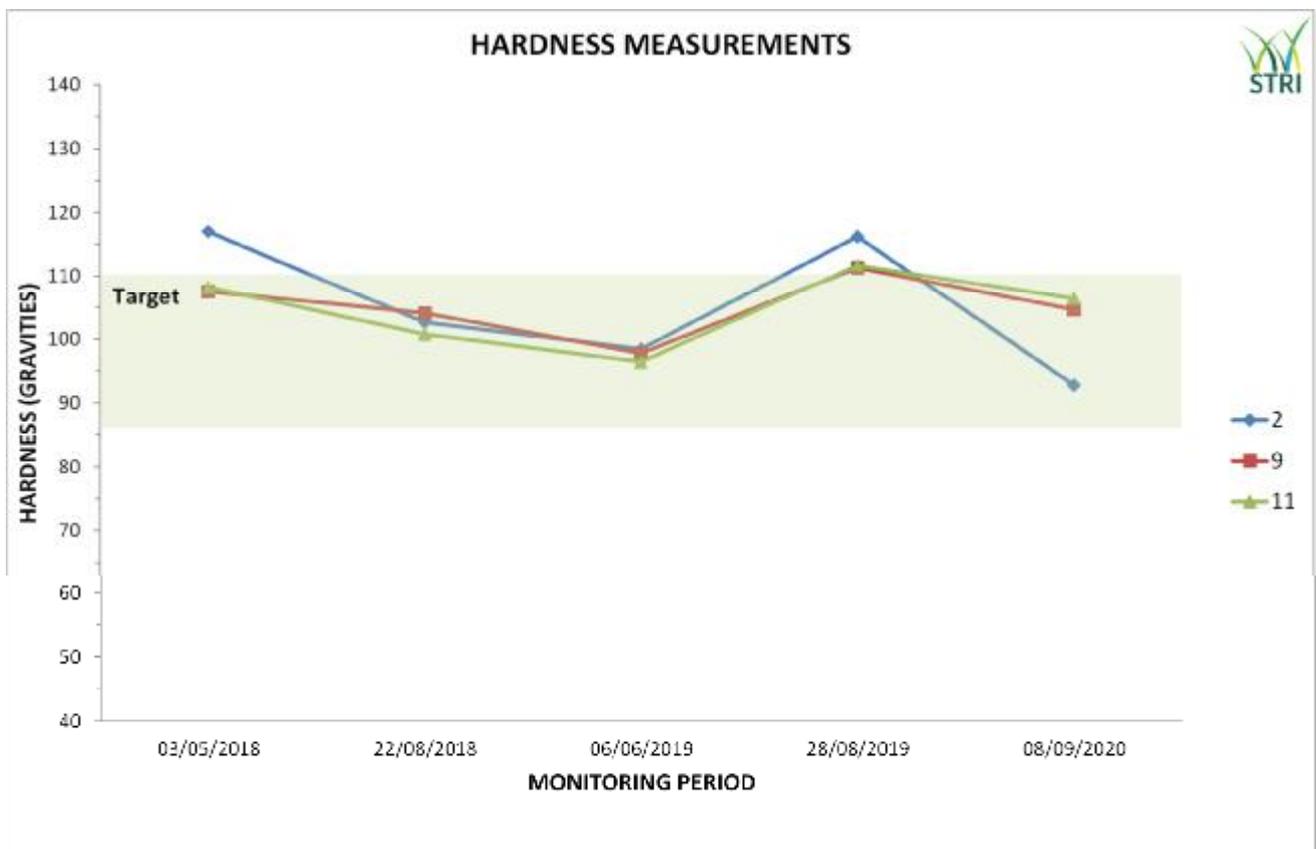
A handwritten signature in black ink, appearing to read "Gary Smith", written in a cursive style.

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# Objective Data

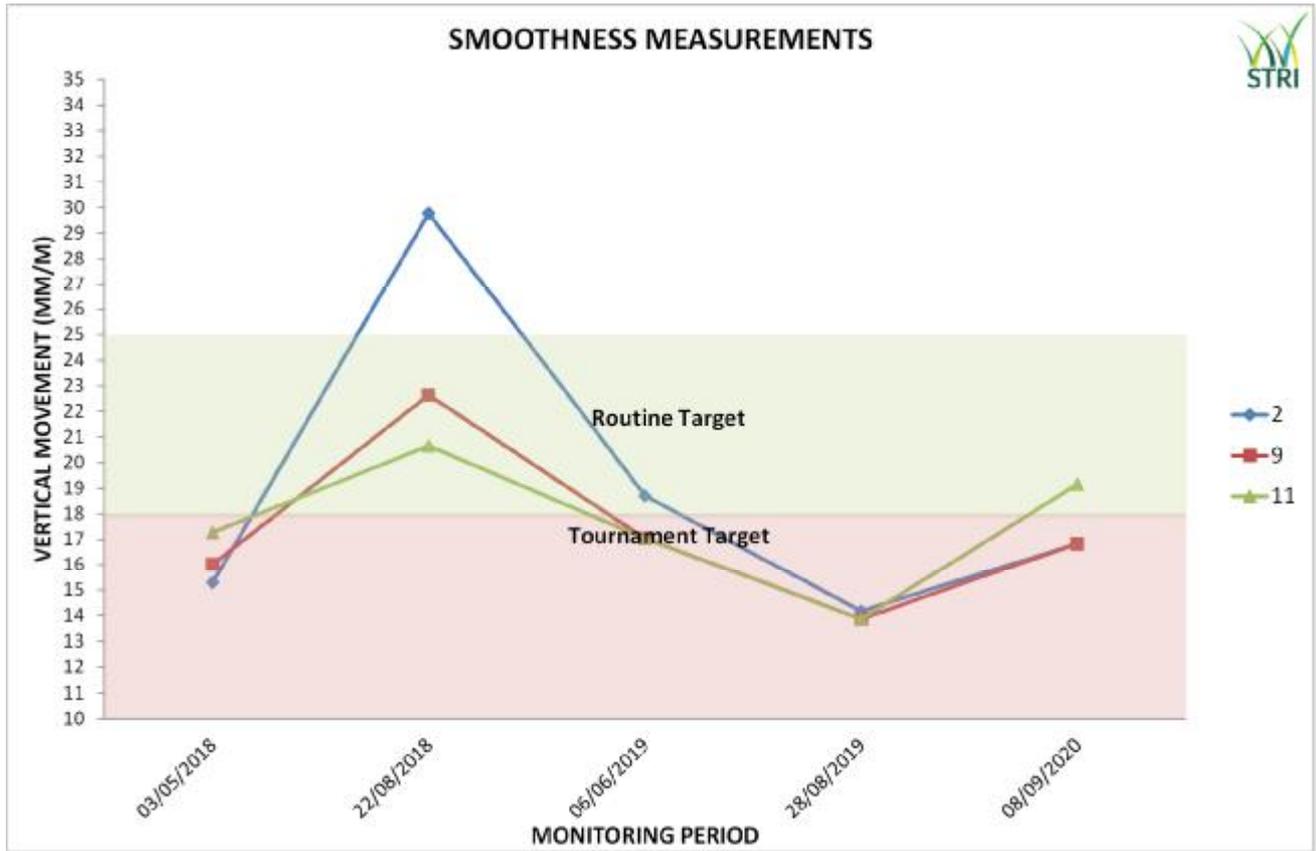


Objective Data Graph 1: The moisture content was within targets on all tested greens,

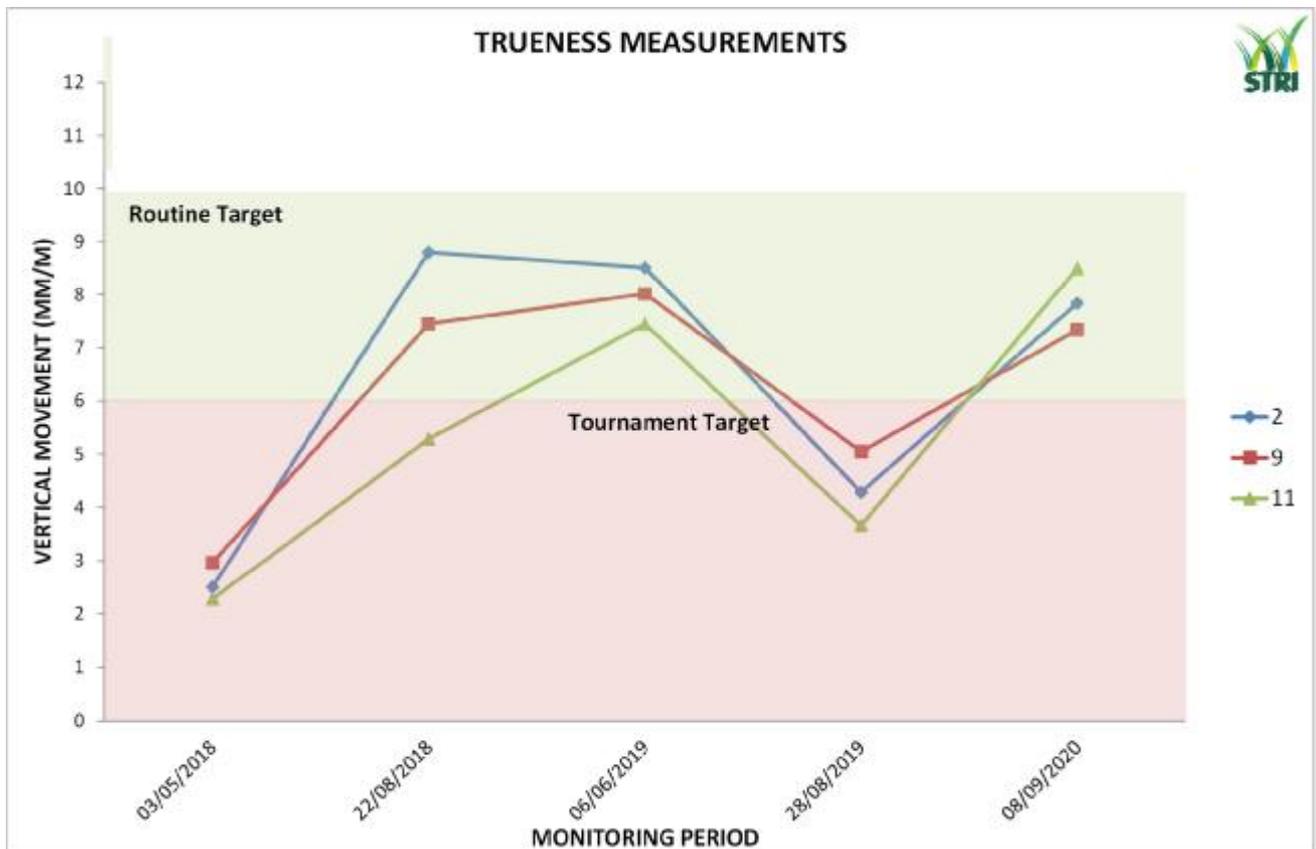


Objective Data Graph 2: Firmness was within targets set and an excellent result for the maintenance team.

Objective Data (Continued)



Objective Data Graph 3: Smoothness and Trueness were both in target and only further highlight the superior quality of the greens surfaces at Ladybank Golf Club.



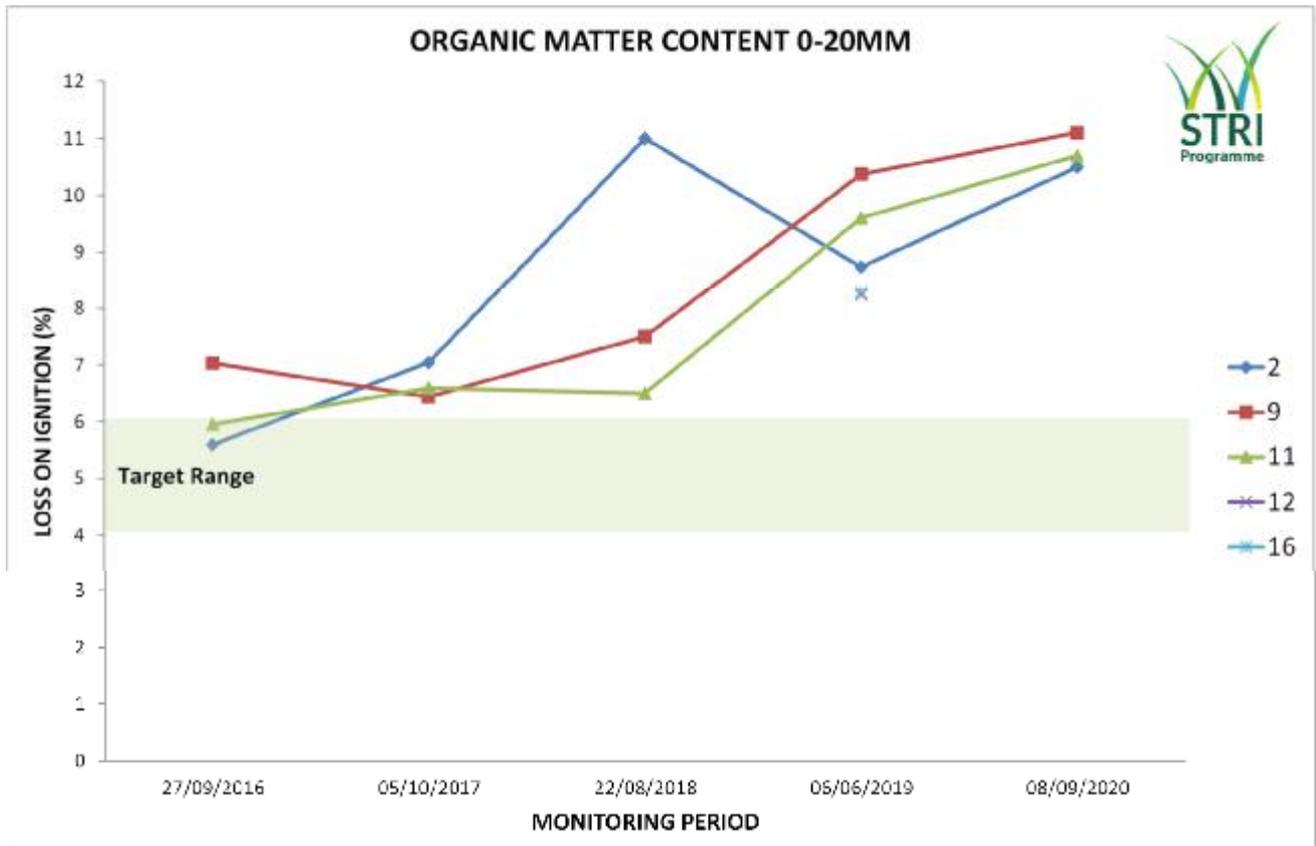
Objective Data Graph 4:

Objective data (Continued)

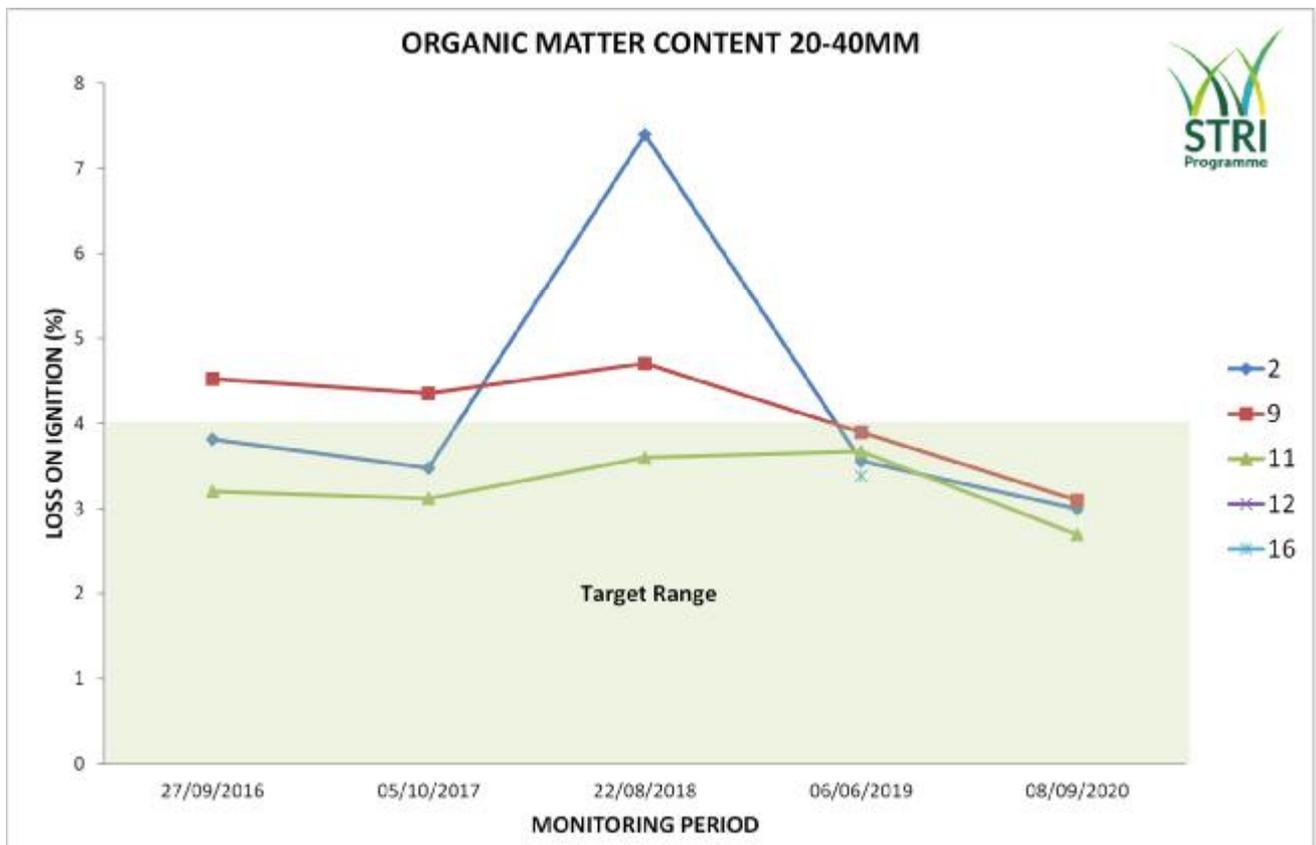


Objective Data Graph 5: Green speeds were within targets and very consistent throughout the tested greens.

# Soils Laboratory Data

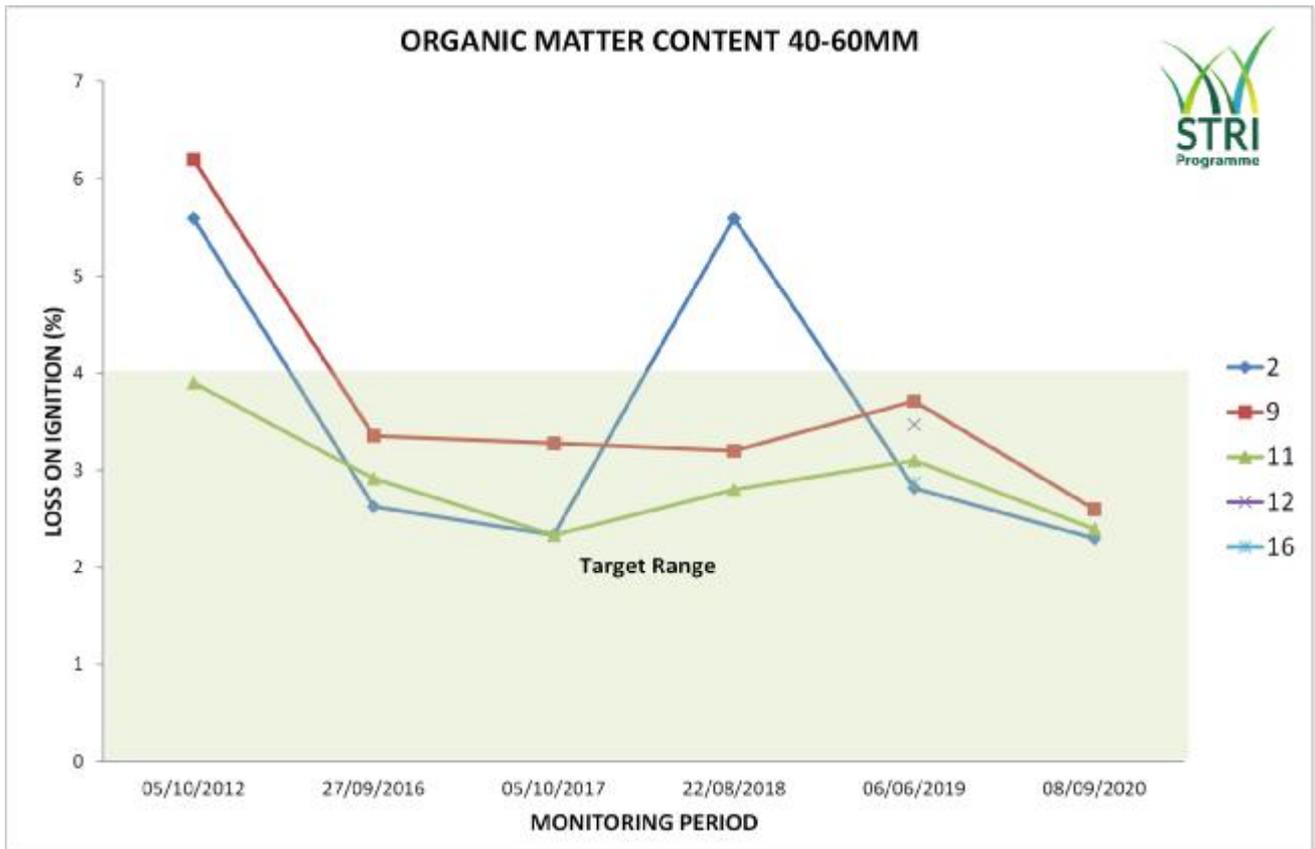


Soils Laboratory Graph 1: Organic matter content is rising, and the greens will require additional inputs to improve this situation going forward.

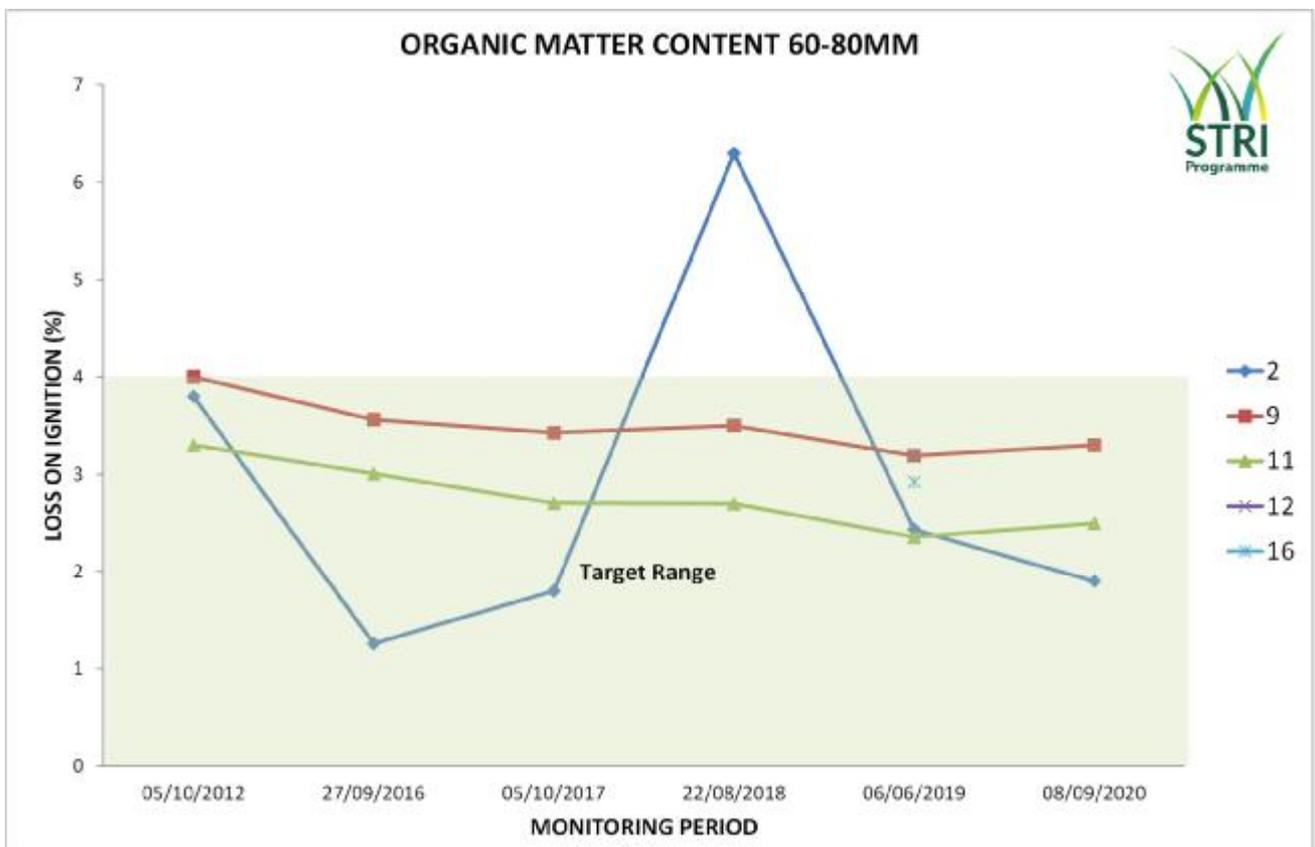


Soils Laboratory Graph 2: Organic matter in all horizons below 20mm are within targets.

# Soils Laboratory Data (continued)

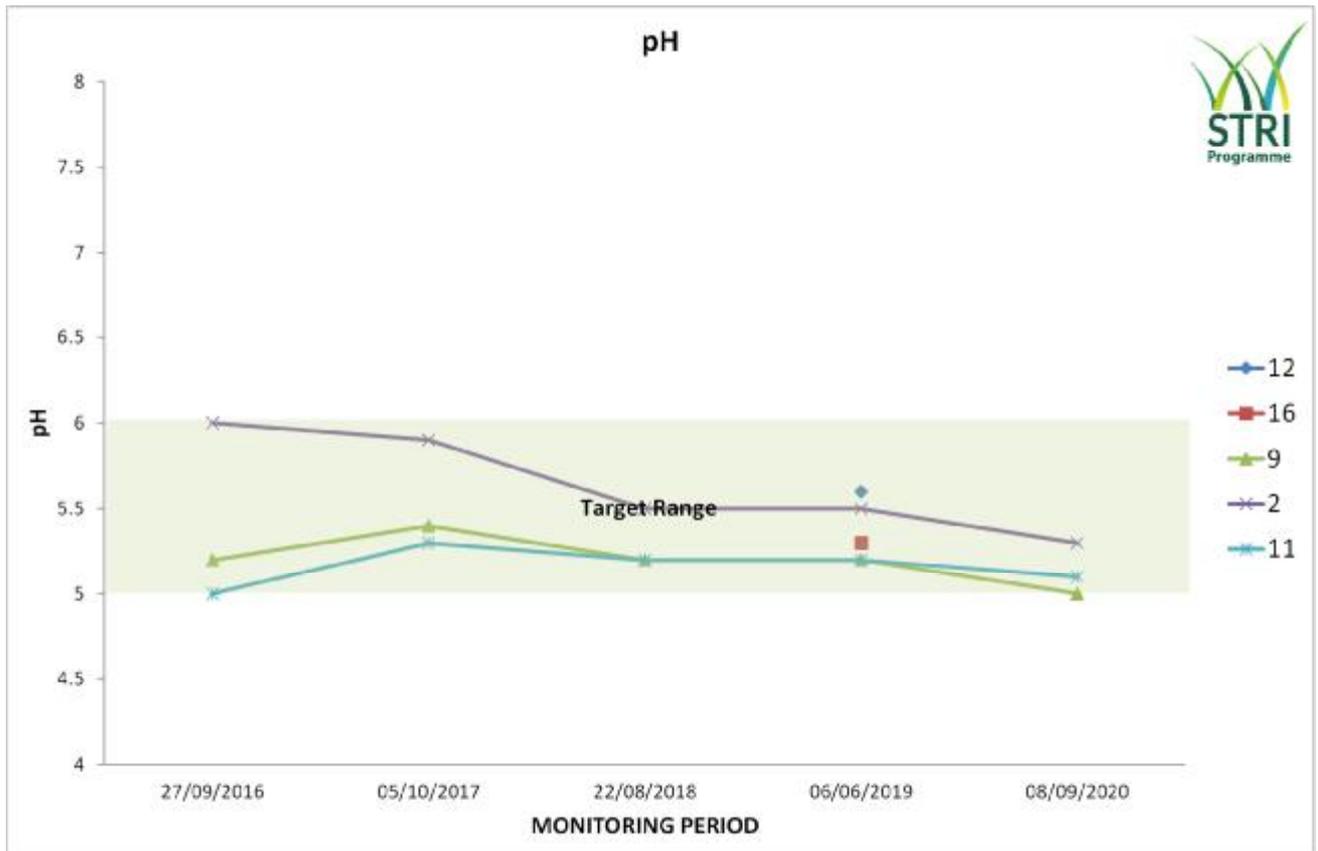


Soils Laboratory Graph 3:



Soils Laboratory Graph 4:

# Soils Laboratory Data (continued)



Soils Laboratory Graph 4: All pH results were at the lower end of the targets and further inputs are required to raise the pH to a more satisfactory pH 5.5-6.

## ORGANIC MATTER CONTENT

CLIENT: LADYBANK GC  
ADDRESS: ANNSMUIR,  
LADYBANK,  
FIFE, KY15 7RA

DATE RECEIVED: 14/09/20  
DATE REPORTED: 18/09/20  
RESULTS TO: GS

TEST RESULTS AUTHORISED BY:

Michael Baines, Laboratory Manager

CONDITION OF SAMPLE UPON ARRIVAL: MOIST

SAMPLE NO	DESCRIPTION	LOSS ON IGNITION (%) <sup>*</sup>	
A18627/1	2	0-20 mm	10.49
		20-40 mm	2.97
		40-60 mm	2.35
		60-80 mm	1.91
A18627/2	9	0-20 mm	11.07
		20-40 mm	3.07
		40-60 mm	2.55
		60-80 mm	3.32
A18627/3	11	0-20 mm	10.75
		20-40 mm	2.69
		40-60 mm	2.36
		60-80 mm	2.48

\* ASTM F1647-11 Standard Test Methods for Organic Matter Content of Athletic Field Rootzone Mixes (Method A)



Testing Certificate 2159 - 01

THE RESULTS PERTAIN ONLY TO THE SAMPLE(S) SUBMITTED AND TESTED



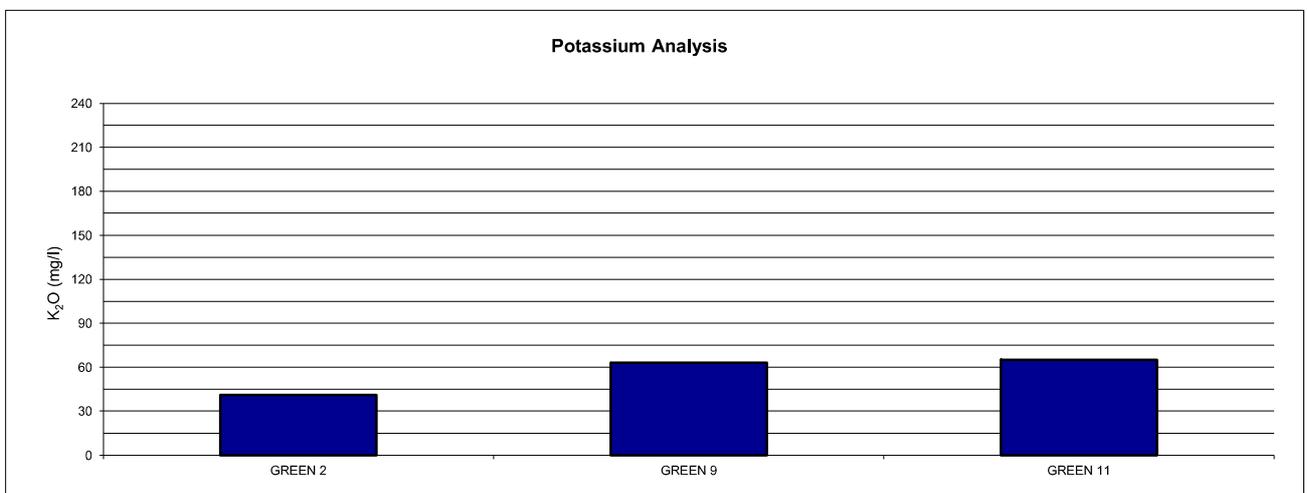
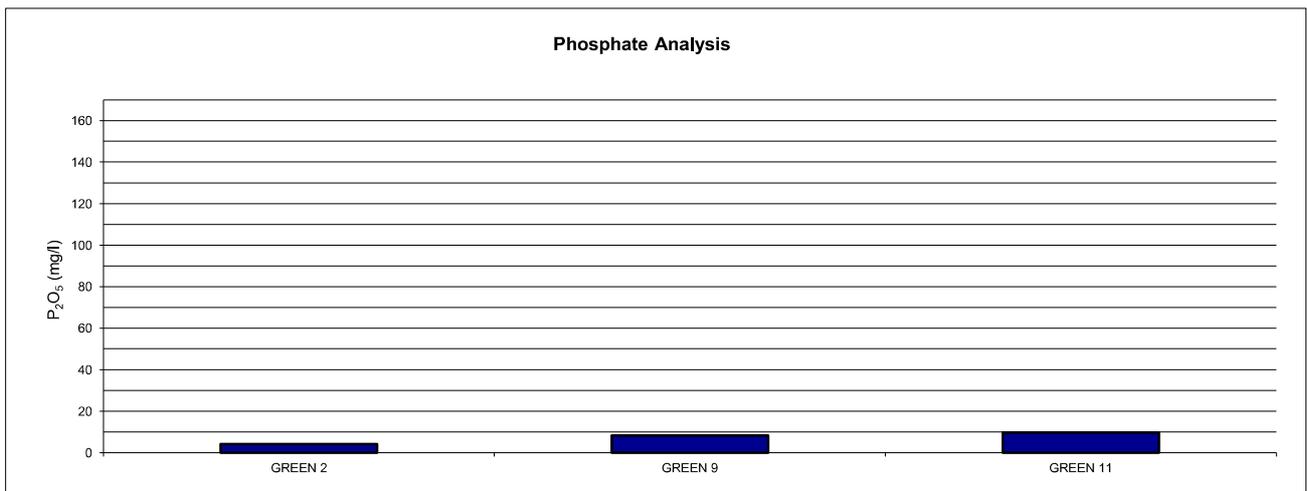
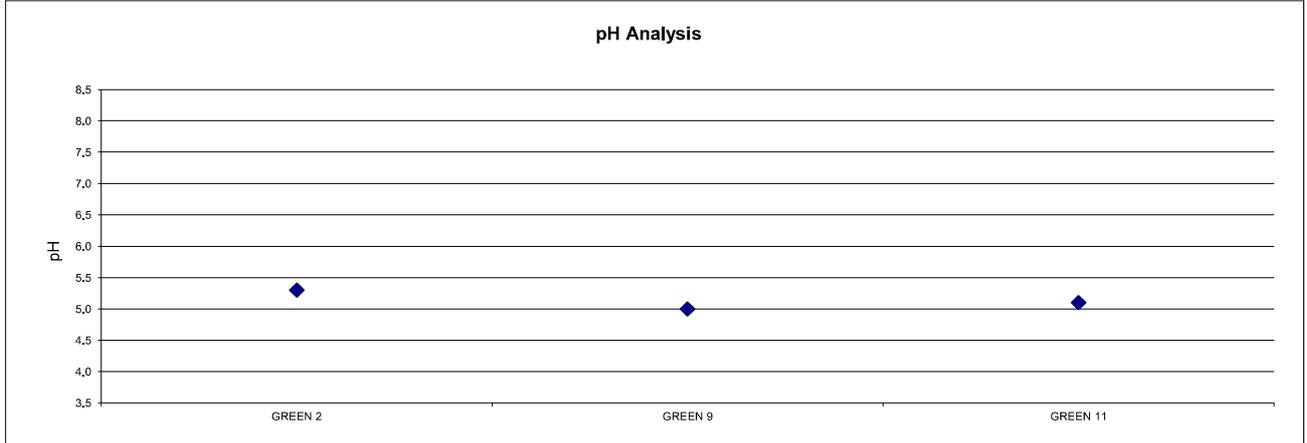
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## SOIL CHEMICAL ANALYSIS

## LADYBANK GC

Date: 14/09/20



THE RESULTS PERTAIN ONLY TO THE SAMPLE(S) SUBMITTED AND TESTED.