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TYNEMOUTH GOLF CLUB

Report on the agronomic condition of the Golf Course incorporating the STRI Programme

Report Date: 7th October 2019
Consultant: Dr Ian McClements

Tynemouth Golf Club

Date of Visit:	Wednesday 25th September 2019
Visit Objective:	To objectively assess playing quality using the STRI Programme and to review the effectiveness of current maintenance practices whilst discussing winter priorities for maintenance.
Present:	Mr David Steven – Greens Convenor, Mr Ian Kerr – Course Manager Dr Ian McClements – STRI Ltd
Weather:	Overcast 13-15°C, northerly wind 4 mph.

Headlines

- Green surfaces were recovering from the Graden sand injection treatment undertaken in mid-August. It is reported that recovery was further advanced this season than in 2018, yet further work was needed to mitigate against the treatment effects on playing quality.
- Ball roll characteristics were being influenced marginally by the sand injection process with both smoothness and trueness values falling either just outside or at upper limits of our recommended values for routine membership play.
- Sand dressings have not been targeted with the desired frequency agreed in the spring due to reported staff shortages. Consequently, we expect organic matter levels to remain at a similar magnitude to that reported in 2018.
- Sward texture was much better refined than had been seen at the time of our spring inspection, yet further refinement is considered possible, an objective for 2020.
- Moisture contents were elevated, highest average recorded on the 7th green, due to organic matter retaining moisture at the surface following overnight rain.
- Despite the elevated moisture levels there were some remnants of summer drought stress, e.g. at the rear of the 8th green.
- The profiles of the 7th & 8th tees remains dry with no significant change from our spring visit. We highlight the requirement to ensure that these profiles are re-wetted over the winter months.
- Tees would benefit from end of season renovation programme with the objective of removing some of the surface organic debris and levelling up minor surface imperfections whilst seeking to improve their durability to play.
- A slight overlap of previous fertiliser application to the 7th green had delivered a slightly stronger growth response and a speedier recovery here to the Graden works.

Key Actions

- Prepare the putting surfaces for the winter with solid tines and sand dressing.
- Remain vigilant for disease through the autumn and winter months, avoid outbreaks that would result in significant scarring.
- Top dress aprons and approaches to improve conditioning for an extension of triplex cutting in 2020.
- If resourcing permits, plan to renovate the tees as they come out of play in the autumn.
- The profiles of the 7th & 8th tees should be re-wetted over the autumn to spring period.
- Adopt a proactive approach to the control of winter traffic to minimise damage to key “in play” surfaces.

Objective Measurements

Measurement	Average	Target Range
Soil Moisture (%)	36.5% (range 34.7 – 39.6%)	15-30%
Hardness (Gravities)	83 Gravities (range 79-86 g)	85-110 g
Smoothness (mm/m)	26.12 mm/m	<25 mm/m
Trueness (mm/m)	9.63 mm/m	<8 mm/m
Green Speed	8 ft 7 in	9-10 ft

Key: In Target | Marginal Variance | Out of Target

- Soil moisture levels were elevated due to overnight rain (20 mm) in advance of our visit.
- Higher than desired organic matter levels will also predispose the surfaces to moisture retention with longer to return to our target range.
- The elevated moisture levels render the surfaces softer than desired.
- Surfaces were recovering from the recent deep scarification work, consequently average smoothness and trueness values were just outside our target range.
- Greens that are less smooth and true will also have lower levels of pace.

Hole	Green Speed	Smoothness	Trueness	Firmness Mean	Firmness SEM (+ or -)	VWC	VWC SEM (+ or -)
2	8 ft 4 in	24.56	9.18	86	1.4	34.7	1.3
7	8 ft 7 in	28.16	10.45	79	2.5	39.6	0.9
8	8 ft 9 in	25.65	9.26	85	2.4	35.2	1.2

Photo Observations and Comments

Figure 1: Whilst sward vigour was good based on yield, surfaces were looking a little tired and washed out given recent heavy rains.

Figure 2: Sward texture was better refined than seen at the time of our spring inspection, but a finer textured surface would be the objective.

Figure 3: A small and occasional patch of *Microdochium* was evident.

Figure 4: Recently installed drainage lines on the 13th green remain below the surrounding surface and require additional top dressings.

Figure 5: Recent deep scarification and sand injection work was evident.

Figure 6: Tees would benefit from an end of season renovation.

Figure 7: The 8th tee remains troubled with dry patch and drought stress.

Figure 8: Dry patch affected sections had a dry and hydrophobic profile.

Figure 9: Where dry patch was not active, the profile was moist through to depth.

Recommendations

Greens

- Putting surfaces should be prepared for the wetter winter months through a programme of sanding and solid tining. The objective is to work some sand into the upper profile and create columns of clean sand to complement the Graden work and to improve winter playability and firmness.
- Apply a decent sand dressing to the greens before solid tine spiking with a 10mm diameter tine to a depth of around 50mm. Follow up with a programme of non-aggressive brushing to work sand into the tine holes as it dries.
- During a quieter period of autumn play, plan to open the green profiles to depth with the verti-drain using a set of 19mm diameter solid tines with a little heave and to a depth of around 250mm. The objective is to fracture the underlying soils to improve winter performance. Further follow up verti-draining could be completed during drier conditions in January or February.
- A sample list of fungicides with modes of action is presented in Appendix 1. Except for Medallion, which is a contact product, other fungicides should be applied early in the disease cycle to confer protection to the turfgrass sward. The most effective time for such fungicide applications is between spore germination and infection.
- Sulphate of iron should be used to harden the sward off against disease activity and is more effective as a winter treatment than chelated iron. Chelated iron would be used during drier conditions or when young seedlings are prevalent.
- Plan to keep the surfaces open to gaseous exchange over the autumn to spring period with a monthly solid tining, use a small 6 or 8mm diameter tine. This will be particularly pertinent to periods of heavy play when surfaces are prone to sealing in wet weather.
- Dew dispersants can be used to help keep the leaf canopy dry during periods of high disease pressure but avoid applying before a fungicide application.
- Phosphites e.g. PK Fight or similar can be used as part of an integrated disease management programme as they have fungistatic properties. These would be applied monthly.
- The general philosophy associated with the nutrition programme is along desired lines, using a granular feed at the end of the playing season (3-4% nitrogen) to encourage little growth and recovery from the scarification works and to prepare the surfaces for the winter playing season. In the spring, growth can be eased out of the winter with lawn sand or similar, which will work well at lower soil temperatures due to its Ammonium sulphate content. Once growth moves on to a strong and stable footing then growth should be maintained with the objective of keeping the surfaces quiet through liquid applications. A go to liquid formulation comprising straights would comprise 6kg of ammonium sulphate and 6kg of urea/ha which would supply 4kg N/ha. The current 10:0:10 product applied at 80l/ha will supply approximately 8kg N/ha which is considered to be perhaps a little more than the greens really need, particularly if boxes are having to be emptied after mowing four greens. Growth rates should be reduced to a point where boxes would be emptied on no more than two to three occasions when cutting all eighteen greens. Slower growth rates would contribute to better levels of pace. A further benefit would also be the development of a finer textured sward. On these greens, monthly liquid feeds should be enough perhaps every 4 to 6 weeks with liquid feed every 2 to 3 weeks on the 7th green.

Green Surrounds and Approaches

- In preparation for the winter and for the potential extension and development of more definitive aprons, top dress the green approaches before growth tails off in the autumn.
- Make provision to use ropes, hoops and line marking to deflect golf traffic away from vulnerable areas that are prone to softening or become wet in the winter months.
- Extending the triplex cutting further out onto the green aprons would help to improve the presentation of the green complexes as well as helping to keep heavier and more damaging machinery such as the fairway mower from turning on vulnerable surfaces. These benefits will have to be weighed up against the small increase in time taken to mow and box off clippings with a smaller cutting unit.

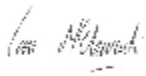
Tees

- Tee surfaces coming out of play for the winter season would benefit from being scarified to lift out some of the organic debris at the sward base, hollow cored and top dressed. Hollow coring represents an opportunity to work seed into the surface if the works are timed to occur whilst there is still the potential for seed to germinate and establish.
- It is appreciated that the hollow coring can be time consuming and labour intensive but it is a valuable process in that it will open up the surfaces to offset consolidation and to create some vertical channels that will allow the profiles to become wetted up again after the summer. If hollow coring is difficult to implement, then at the outset plan to verti-drain the tees following sanding.
- The 7th & 8th tees profiles remain dry and hydrophobic. These surfaces need to be opened with a solid tine and the profiles thoroughly irrigated, including a wetting agent to aid the process. Where the turfgrass cover is weakened then overseeding is a pre-requisite to encourage recovery. On these tees that are prone to drying then use a seed mixture containing equal proportions of fescue and ryegrass, the fescue being particularly resilient to drier conditions.
- The 1st tee was examined with a view to resurfacing this to improve immediate surface levels and general standards of presentation. Whilst levels were considered to be poor, these are not as bad as others, surface presentation is compromised by the poor blend of species with fescue found towards the front and right hand side of the tee with clumpy ryegrass dominant towards the main access point on the left and to the rear of the teeing surface. If a decision is taken to strip the tee then the existing surface would be removed, thinly cutting the turf to preserve the underlying growing medium which will be cultivated and regraded. Use a quality fescue/rye turf imported from either County Turf or Tillers with a nominal thatch content so that the young turf will root quickly into the underlying growing medium.
- A tee appraisal could be conducted to review current conditions across all tees on the course. This could then form the basis of a tee improvement programme. Tees would be assessed for the following criteria:
    - Immediate surface levels - use a 2m straight edge and measure the maximum deviation under the straight edge, taking the average of five to ten measurements across each tee.
    - Tee size could be assessed, and a score attributed to the ability to tolerate play, surrounding growing environment and tee alignment/direction.
    - Overall scores and ranking could be calculated on the basis of each of these individual characteristics which would then help to identify the poorest performing tees and help in the formulation of a tee improvement programme.

Fairways

- It was reported that fairways were verti-drained in 2018 and the focus for deep aeration work this winter would be walkways and traffic routes. Sand in advance of the aeration work help improve their carrying capacity.
- Plan to slit tine the fairways on a couple of occasions over the winter months to open the surfaces to encourage moisture penetration and rewetting.

Signed



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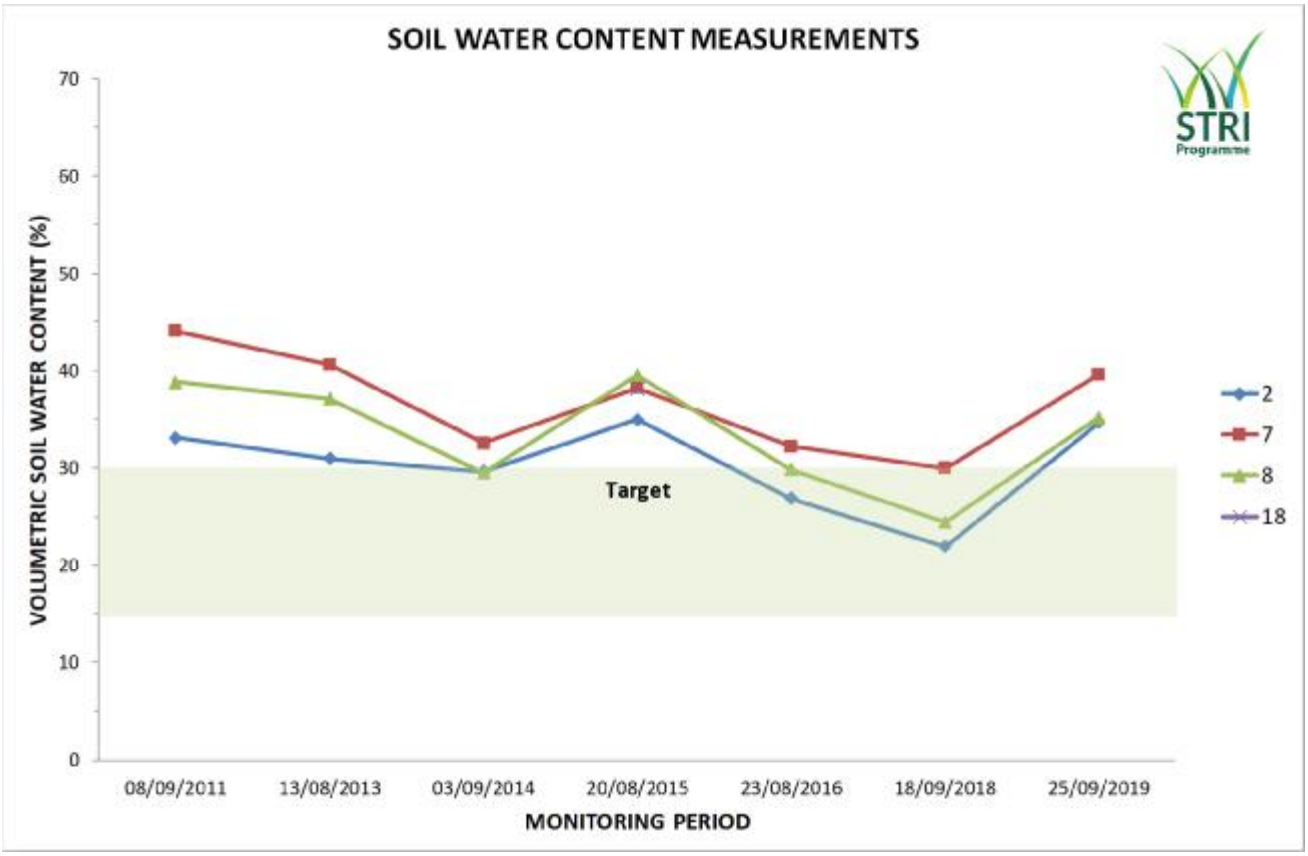
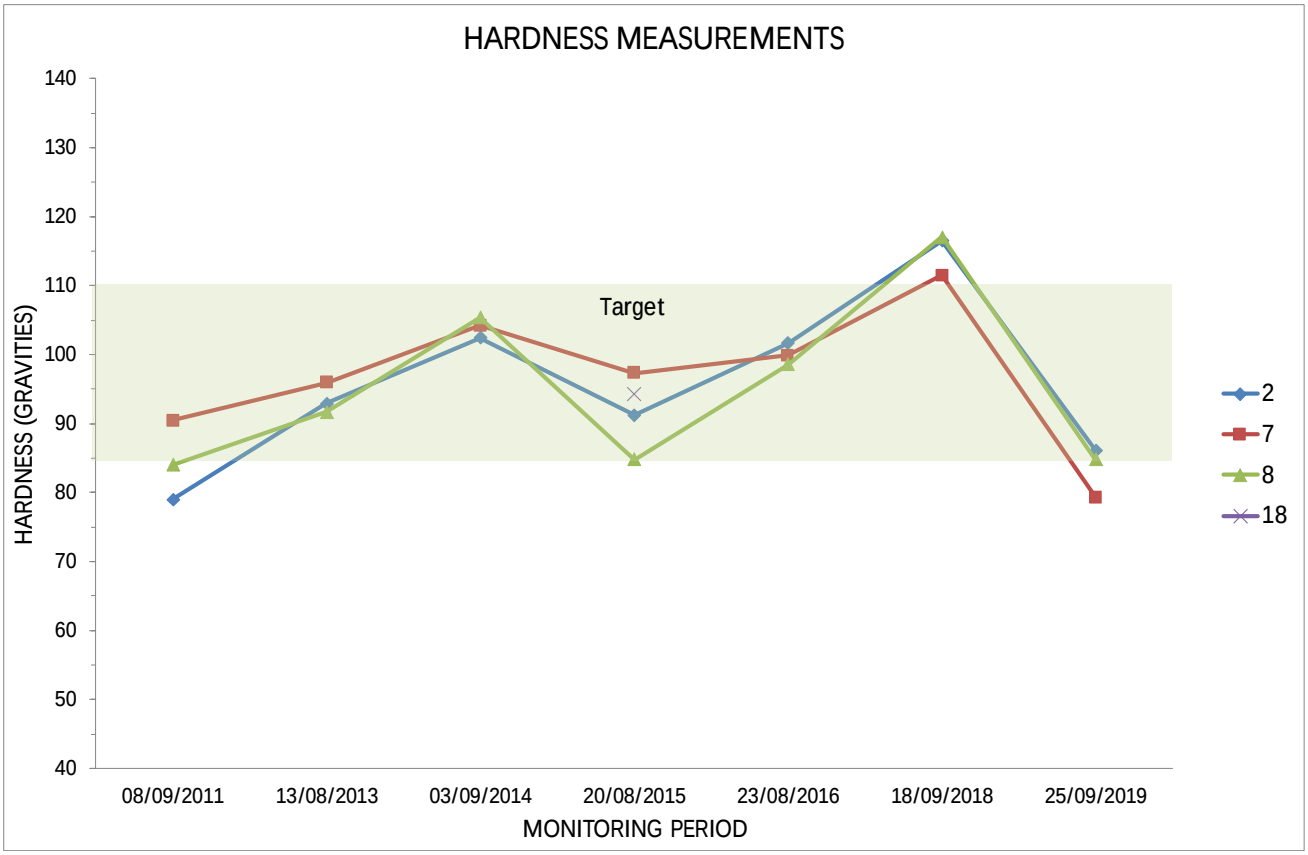
Objective Data

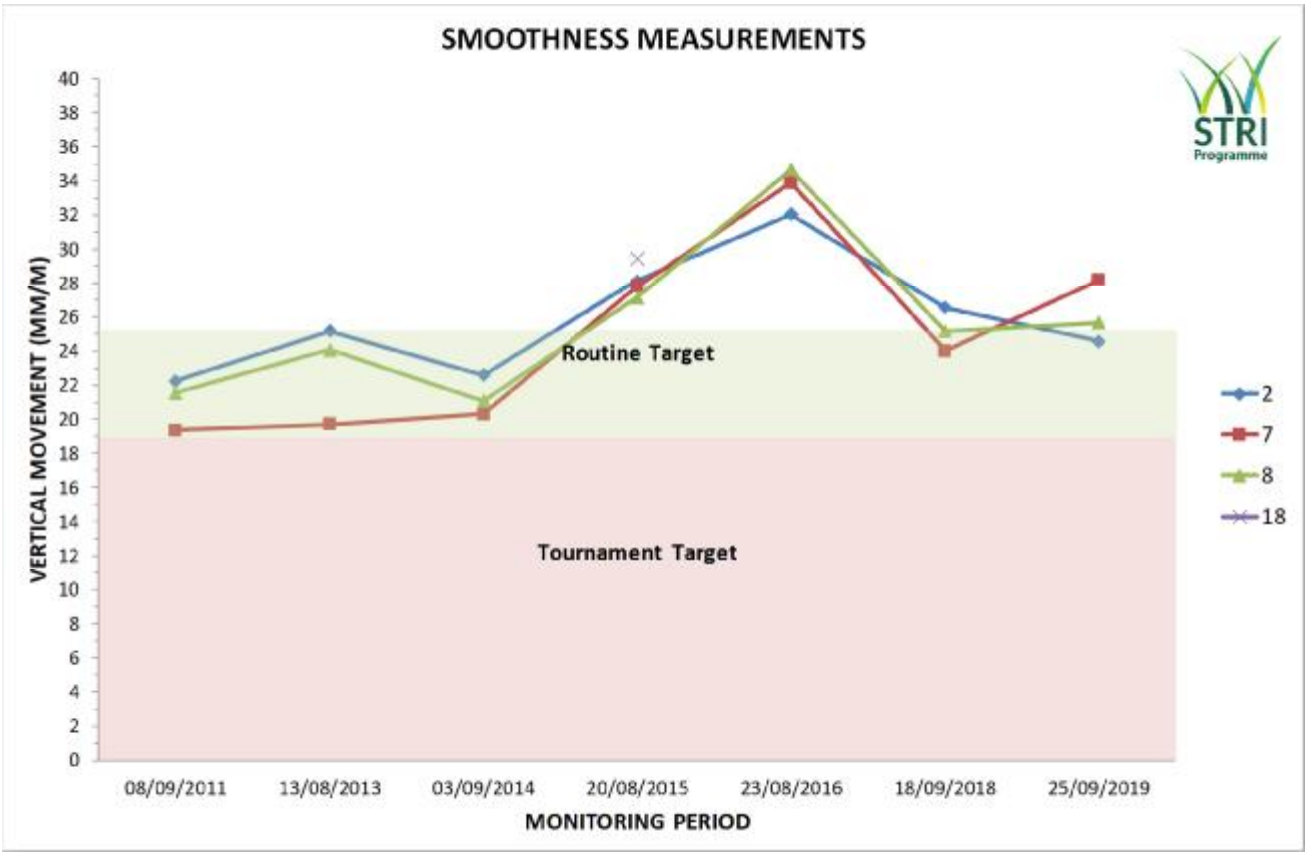


Objective Data Graph 1: Green moisture content.

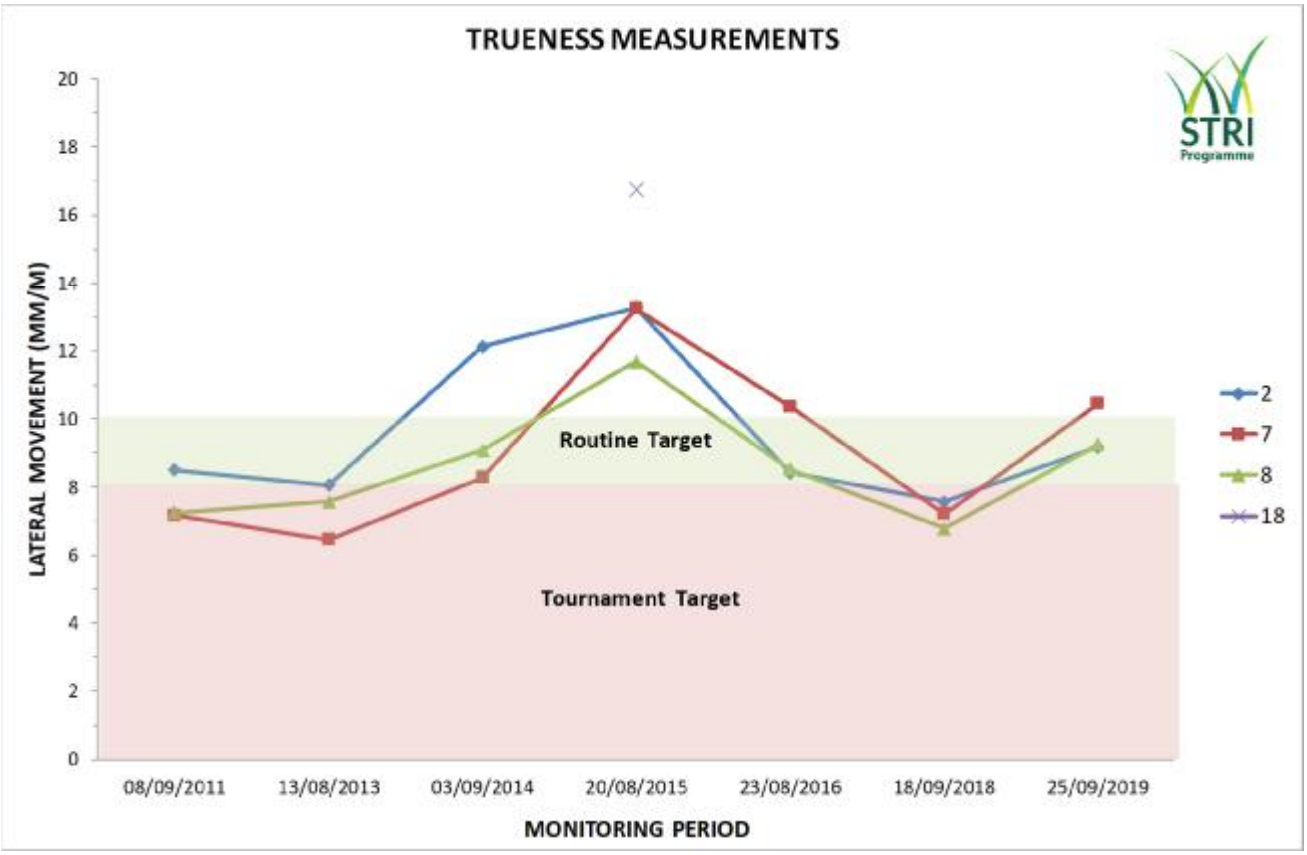


Objective Data Graph 2: Green firmness assessments.

Objective Data (continued)

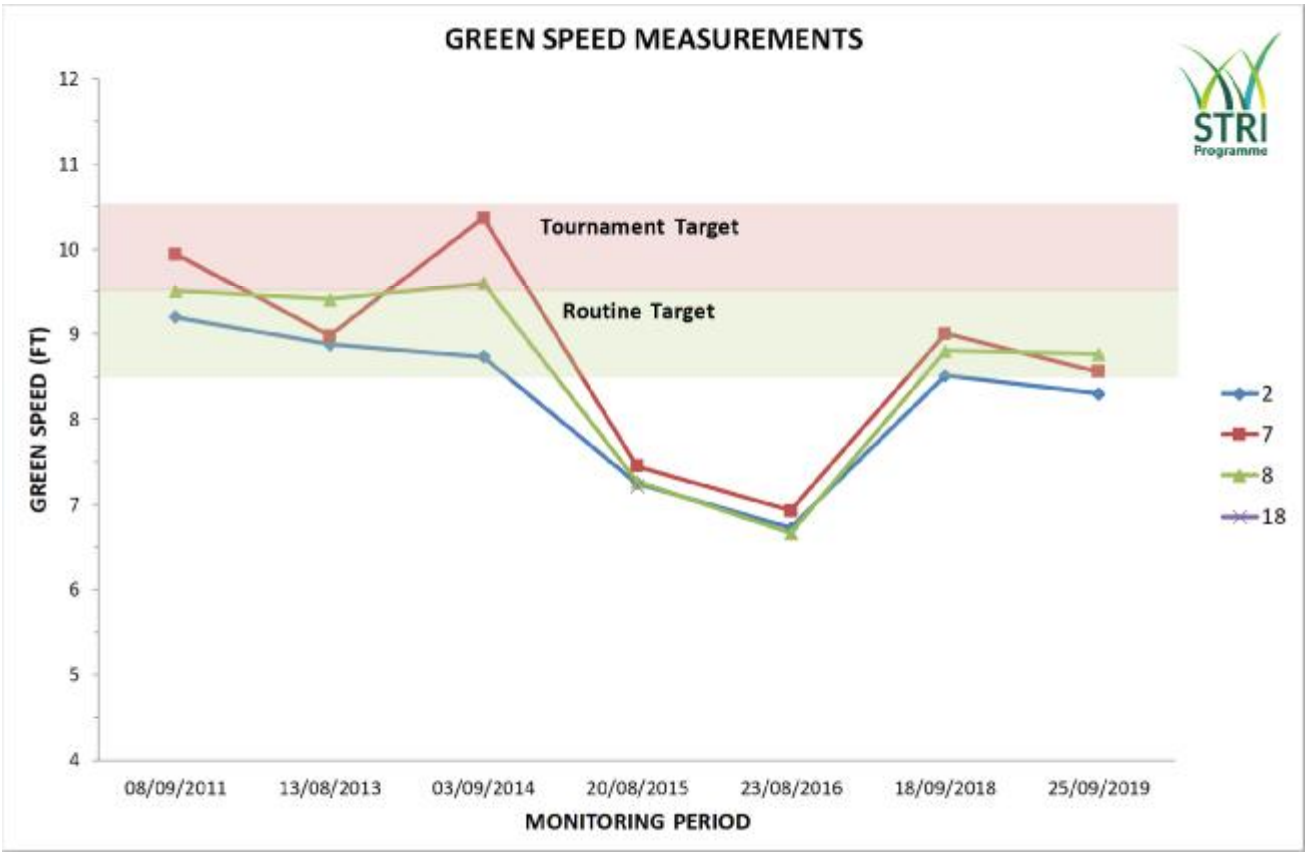


Objective Data Graph 3: Putting surface smoothness.



Objective Data Graph 4: Putting surface trueness.

Objective Data (continued)



Objective Data Graph 5: Green speed assessments.

APPENDIX 1

Fungicide Options

Fungicide	Active ingredients	Chemical group	Mode of action	Resistance Risk	Comments
Dedicate	Tebuconazole (200 g/l)	DeMethylation Inhibitors	Acropetal penetrant	Medium risk	Moves systemically upwards from the point of plant absorption via the xylem
	Trifloxystrobin (100g/l)	Quinone outside Inhibitors	Mesostemic (Local penetrant)	High risk	Inhibits spore germination with partial movement within leaf tissue
Exteris Stressgard	Fluopyram (12.5g/l)	Succinate-dehydrogenase inhibitors	Acropetal penetrant	Medium to high risk	Moves systemically upwards from the point of plant absorption via the xylem
	Trifloxystrobin (12.5g/l)	Quinone outside Inhibitors	Mesostemic (local penetrant)	High risk	Inhibits spore germination with partial movement within leaf tissue
Heritage Maxx	Azoxystrobin (95 g/l)	Quinone outside Inhibitors	Acropetal penetrant	High risk	Moves systemically upwards from the point of plant absorption via the xylem
Instrata Elite	Difenoconazole (80.3 g/l)	DeMethylation Inhibitors	Systemic	Medium risk	
	Fludioxonil (80.3 g/l)	PhenylPyrroles	Contact	Low to medium risk	Broad spectrum protectant
Medallion TL	Fludioxonil (125 g/l)	PhenylPyrroles	Contact	Low to medium risk	Broad spectrum protectant
Scorpio	Trifloxystrobin (500 g/l)	Quinone outside Inhibitors	Mesostemic (local penetrant)	High risk	Prevents spore germination with partial movement within leaf tissue