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PYECOMBE GOLF CLUB

Advisory Report on the Golf Course incorporating the STRI Programme

Report Date: 31st October 2019
Consultant: Paul Woodham

Pyecombe Golf Club

Date of Visit:	Thursday 24th October 2019
Visit Objective:	Review of course conditions and strategy for continued maintenance with specific review of fairways
Present:	Geoff Wise – Club Manager, Dave Lucking – Chair of Green Simon Wells – Head Greenkeeper, Stephen Milner – Deputy HGK Paul Woodham – STRI Ltd
Weather:	Prevailing wet conditions during the past month.

Headlines

- Our visit focused on the condition and continued reparation of the fairways following damage sustained during the 2018 drought and heat stress conditions.
- The south facing orientation and contours of the fairways leave many exposed to the elements and open to damage. The lack of recovery was predictable given the sustained drought pressure and cold conditions which dominated the first half of this year.
- There is better recovery than I had anticipated given the concerns raised prior to the visit, and the evidence of the extent of damage in the Clubs previous report dated March 2018. The rate of recovery is acceptable given the site specific challenges. UK, especially southern and east region, Heathland, Links and Downland courses have continued to struggle to recover sward density in unirrigated areas.
- Whilst good progress has been made, the texture of the grass cover lacks fineness. There is a legacy of damage whereby many of the usual drought tolerant fescue species failed to tolerate the extreme heat stress conditions. Weaker and coarser texture grasses inevitably establish in the gaps. Leaving the recovery to nature alone will take years to regain the preferred sward characteristics.
- Fairway overseeding is showing signs of establishment. The work was correctly held off until soil moisture levels increased. The prior application of scarification has been a beneficial treatment albeit seen to be disruptive at the time. The surface needed to be 'ripped' to break the surface tension of water repellent (hydrophobic) thatch. These thatch levels need to be reduced and managed over time.
- The course has experienced past issues with invertebrate activity (leatherjacket and chafer). Control measures are limited and although greens have been treated, widespread application of insecticide is governed by emergency approval legislation therefore not sustainable.
- Greens profiles were seen to be draining relatively well and retaining their integrity under the pressure of high soil moisture content (>40%). Weather conditions deteriorated by the time we reviewed the known weaker greens such as the 1st and 9th. The difference in playing characteristics should be measured to reveal the true extent of surface and agronomic performance.
- The structure of greens thatch (organic matter) is consistent with a slight excess accumulation in the immediate upper profile. The extent of organic matter density is likely to vary across the course. The weaker greens promote conditions which will serve to promote a more vigorous production of organic matter. There are greens and sections of greens which struggle to achieve the required drainage rates.
- The greens are well managed and it is pleasing to see a good blend of grass species which can support long term sustainable management and performance.

Key Actions

- Shallow solid tine aeration through all recovering fairways in advance of additional seeding into the pots created. This needs to be completed as early as possible.
- Monitor winter recovery and allow provision for additional feed subject to progress.
- Refinement of fairway grass sward texture through introduction of spring tine raking. This practice will help to gradually break up the accumulation of thatch.
- Option for inclusion of preventative wetting agent treatments or contingency for penetrant applications during early spring.
- Revert to tighter mowing during the next main season to encourage refinement of the sward and tillering.

Photo Observations and Comments

Figure 1: Seeding lines remain prominent but undisruptive. There are larger areas of bare ground or weak sward density yet to fill in.

Figure 2: Some of the scars are under additional stress and continued damage from bird and pest activity. This is to be expected as weak sward vigour will encourage bird activity pecking for grubs and worms.

Figure 3: Fairway sward texture was typically leggy especially in the softer growth grass species. Fescues are filling in and recovering but there is a significant amount of work required to improve the presentation and resilience of the swards.

Figure 4: A good example of fine leaf 'needle like' fescue in amongst bent and other native grasses. There is a bit of leaf spot disease seen in the bent but this should feed out.

Figure 5: There is a significant accumulation of woody thatch above shallow depth heavy texture subsoils. Although a heavy texture, the profile structure is currently well formed and allowing root development.

Figure 6: It is difficult to establish new seed though drilling into thatch and especially so where the discs only partially engage with the soil. The seedlings were fragile at the time of inspection.

Figure 7: We reviewed a section of poor growth in the sculpted hollows right side of the 17th rough. The soil depth is shallow, and the turf is yet to build a sufficient thatch layer. Conversely, the mounds are richer in nutrient and encourage courses grass types. We discussed using cores harvested from a fine grass area of the practice ground to build the soil depth.

Figure 9: The application of chisel solid tine aeration was particularly effective in penetrating the upper 50mm depth with very little disturbance using the new ProCore pedestrian aeration unit.

Figure 10: Soil samples collected from the 17th green noted the formation of layer of sand dressing sandwiched by thatch in the top 25mm. The samples will be analysed at 20mm increments to measure the percentage of organic matter and compare results to the 1st green.

Figure 11: The density of the 17th green sward is impressive and noting a widespread presence of fescue within the blend. The density is keeping moss out of the sward and all greens were free from typical autumn diseases such as microdochium patch and anthracnose.

Figure 12: Green profiles consistently showed the benefit of deep solid tine aeration which is encouraging vigorous root development. Roots will explore the deeper vents, also to be utilised for drainage.

Photo Observations and Comments (continued)

Figure 13: There is evidence of weaker drainage, largely with slower infiltration, in low lying areas of greens. The expression of Yellow Tuft is commonly seen in this situation when environmental pressures are conducive to its development (see notes).

Figure 14: The 9th green was potentially the weakest seen. The sward density is thinner and under pressure from the wet conditions with the Poa annua dominated sward opening up to allow soil surface algae and 'squidge' to form. The profile inspection noted the clay subsoil to be soft and holding moisture.

Recommendations

Greens

- The true nature of organic matter status needs to be identified through a formal testing of loss on ignition analysis which will be carried out on the samples collected from the 1st and 17th greens. The 17th green was selected as an average to better performing green whereas the 1st was indicative of a weaker green, more vulnerable to softening under the pressure of excess moisture.
- It is likely that the indications of visual assessment would suggest excess in the top 20-25mm of the profile with evidence of layering with formed bands of sand offering partial dilution of organic matter. The results will be detailed in a revision of this report to be issued once the analysis is complete.
- The Club has the ideal tool for ongoing upper profile aeration with the ProCore 648 offering the versatility required to maintain a well aerified rootzone, and to allow integration of dressing into the turf base and layer of organic matter to improve its structure by dilution. I will discuss in the revised report whether or not there is a need for physical removal initially through micro-hollow core aeration again using the ProCore unit, or whether the upper profile can be improved through solid tine aeration and integration of dressing alone.
- The consequence of excess organic matter will be varying degrees of softening at the turf base and also increased surface friction thereby reducing the consistency of surface smoothness, trueness and speed during the course of the day, and under the influence of different weather conditions. That being said, the profiles are well managed but like so many other courses there is a need to reduce the variances and strengthen the integrity of the swards as much as possible. This in turn will further improve the conditions most conducive to maintaining and increasing the percentage of fine grass species in the swards.
- The occurrence of organic matter layering (layers of thatch) is not helped by the inability to be more versatile with topdressing applications. The belt drop spreader method is seldomly used on courses for frequent practice as now as most have the ability to utilise modern equipment such as a spinner dresser. This spinner application of dressing is faster and allows for lighter dressing which is particularly useful through the autumn and winter months. We increasingly see courses continue with topdressing

applications through the autumn and early winter months without fear of increasing disease when dressing is lightly spun at a rate of 2-3 tonnes per 18 greens several times through the winter. This may not sound a significant increase, but it is helping to dilute the turf base at a time when growth is extending through these warmer autumn months and increasing annual volumes which are required to improve the authentic firmness characteristics of the surfaces.

- The other aspect of keeping control of organic matter is to manage the growth and soil moisture relationship. The record provided in advance of the visit shows there is a clear understanding of the nutrient inputs and growth response, also a good understanding and application of irrigation as a form of moisture control. The Revolution wetting agent programme is fully supported and will help, but again our conversation comes back round to the control of upper profile organic matter in creating an environment where there is a most accurate and authentic moisture to air and firmness balance.
- Good control of nutrition and plant health is helping to maintain sward density with the conditions favouring a finer grass species. It is encouraging to see the strategy for managing sward height at a level which will not unnecessarily induce plant stress and result in thinning therefore the increase in moss but would still meet the Club's requirement for performance.
- The upper profiles, from beneath the layer of excess organic matter through to the interface of topsoil, are uniform and compaction free. Root development is certainly taking advantage through any major deep solid tine or soil vent space. The strategy for deep solid tine aeration as part of greens renovation and major maintenance should continue.
- The subject of when to schedule renovations was discussed. The current scheduling is correct and ideal for including overseeding (mid-April and mid-August). There may be opportunities for overseeding outside of these periods but the timing of cultural applications such as deep solid tining and major integration of dressing is best applied when there is a period of good growth, away from poa annua seeding, and applied when the soils are most receptive to treatments. Spring renovation is often the more controversial task and the scheduling could be flexible if ground and weather conditions are appropriate and offer a window in late Feb-Mar. This can never be guaranteed and the renovation would be best diarised for the existing window.
- Greens with suspected drainage issues, such as the 9th, express the negative influence of high moisture on the upper profile conditions and on sward health. We saw how Yellow Tuft disorder was evident in low lying areas where moisture collects and how the 9th green sward was less dense and more open to the formation of winter surface algae and squidge.
- Yellow Tuft is triggered by the casual pathogen *Sclerophthora macrospora.* It is an obligate parasite that attacks the shoots of grasses. The condition usually appears in wetter areas and affects weaker cool-season grasses during early to late spring and mid-late autumn. With recent temperatures fluctuating conditions have been favourable for this disorder to be seen. The disease is not a concern and most likely not that visible to the golfer. Time will tell whether drainage improvements need to be made if climate changes increase the frequency of extended wet periods.

Green Collars, Surrounds and Approaches

- The green collars and surrounds were in excellent condition with an extension of fine grass species from the fairways merging into the greens. We are commonly seeing botanical composition deteriorating and becoming devoid of fine grass species dominance within the first 3m of the green where there is increased pressure from machinery turning, triple mowers, on off rolling from turf irons, and of course pressure from golf traffic getting too close to the greens.
- It was therefore encouraging to see a proactive approach to protection during the wet autumn conditions with the ropes and traffic control lines already set out. This is a necessary practice often seen as a

frustration to the golfer, but it is essential especially considering there is very little time for recovery as the weather conditions are typically unfavourable in dry and cold spring periods in this region.

Tees

- I fully support the Clubs continued programme of reconstructing tees to improve surface levels and any design changes. This will therefore provide the opportunity at time of reconstruction to improve grass species through re-turfing and the longer-term aspiration to provide a more formal programme of overseeding of fescue and dwarf rye cultivars into the tees to help recover from wear and tear.
- The current policy for managing winter play by moving to winter tees is supported. The grass species at the side of the tees are commonly not strong enough to cope with extended periods of winter play without having a significant negative affect on conditions through the early and main season months. In addition, many of the main tees are tucked away in difficult to reach areas once ground conditions become soft and slippy. I would advise no changes in the policy.

Fairways

- There is a requirement for additional seeding into the fairways to aid recovery but also to improve the grass species composition which was damaged during the heat and drought stress conditions of 2018. The drill seeding work has been successful to a point, but there are many weak and thin areas which need additional work.
- I advised taking early action in the form of shallow solid tine aeration through all of the weaker fairways and then to follow this with localised distribution of fescue seed worked more intensively into the bare areas to create pots for the seed to establish. The shallow aeration should be deep enough to engage with the soil penetrating the thatch layers. There will be a greater chance of the seed establishing over winter using this method to compliment the work which has already been carried out. We have to pre-empt that the spring conditions will be cold and dry therefore the opportunity has to be taken whilst there is autumnal moisture levels and some warmth in the soils to establish seed.
- Monitor response to the granular fertiliser which has been applied and continue with light feeding if required to further strengthen the seedlings and general recovery. If temperatures drop then continuation of liquid feed in the form of liquid nitrate fertiliser (calcium nitrate, magnesium nitrate etc.) would allow the recovery to continue. This needs to be done with care as we only want to promote the finer and native grass species.
- Consideration needs to be given to the use of surfactant wetting agents to help guard against the onset of dry conditions within the thatch layer and the soils during the spring.
    - It is understood that penetrant wetting agents (Dispatch) have been used to help the re-wetting process with good effect, but a more preventative strategy could be worthwhile and treatments should start early whilst there is adequate moisture in the profiles to take product to the zone which needs to be reached.
    - Cost will determine which strategy and product could be selected. I have seen best results using higher-end technology such as modified methyl capped block co-polymer (Revolution) applied as a winter and early season loading treatment (com bination of full and half-rate), and good results using shorter-term technologies such as reverse block co-polymer (Primer Select @ 5l/ha/£80/ha - monthly) or straight block co-polymer such as Fifty90. Fifty90 is a 3-6 month application but I would foresee two treatments being required (December and February), one of which could be half-rate (25l/ha) leading into the full rate application for spring. A full rate application would be in the region of £900 per hectare. Moving to a cheaper product/technology, Aquatrols Firmway could be applied between 2-5l/ha as monthly treatment (£30-75 per/ha) but starting early i.e. from December to protect the sward and recovery through spring.

- The aforementioned products come out of the Aquatrols range and alternatives could be considered but my advice would be to go with the best product you can afford and start early, then back off.

- The Club should embark on a programme of refining the sward texture and improving presentation once stronger growth emerges next year. I recommended introducing spring tine rake treatments such as Wiedenmann Terrarake or similar into the annual maintenance programme possibly as many as three times during the stronger periods of growth with the objective of slowly chipping away at the turf base thatch levels and thinning down the weaker and shallow rooting grass species.
  https://wiedenmann.co.uk/terra_rake_new.html
  http://brownsgroundcare.co.uk/products/sports-master?c=14
  https://www.terrington-machinery.co.uk/product/grass-manager-sr-new-for-2018/
- In addition, I would recommend reverting to a 13mm height of cut through main season to maintain a better texture and again promote tillering and encouragement of finer grasses.

Signed

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