

Hell is a WET PLACE

By Steve Isaac, STRI

Summer 2002 has been a nightmare for many Greenkeepers and golfers in certain parts of the country. The extremes of rain over such a prolonged period have severely disrupted course maintenance, often making it impossible. Many appreciate the problems such extreme wet weather poses and many Greenkeepers are grateful to committees for sterling support in times of stress. However, it is always disappointing to hear of campaigns against Course Managers, the management programme for the golf course and the Club's Agronomist when presentation and course condition suffer in times such as these. It is usually a vocal minority of Members that conduct such campaigns, but they should address the facts of the situation before trying to incite dissatisfaction within the Club.

I can understand their frustration at the standard of playing surfaces and presentation this summer. However, the negative criticism, and sometimes abuse, aimed at the Course Manager helps nobody, especially as it obviously stems from ignorance of the facts, or a lack of acceptance of the realities of the situation. Let us present some of the facts behind the poor performance this summer, with particular emphasis on Scotland, and then with a greater understanding we can all, perhaps, go forward with some positive ideas.



GOOD WEATHER FOR DUCKS

1) In Scotland, from April to the end of July, there was a staggering 63% above average rainfall. The months of May, June and July saw 423 mm of rain, compared to the average of 260 mm. These are Met. Office figures and locally there may have been even more. I was at a Club recently and was informed that the rainfall measurements they keep showed that by mid-June 2002 they had seen as much rain as had fallen through the whole of 2001!

2) The number of rain days over this period was 59. That's 59 days out of 91, with little drying weather or sunlight in between.

3) Figure 1 (shown on the opposite page) shows the monthly rainfall figures for 2002 up to July, compared to average figures. Every month has been wetter than the average, quite a few show considerably more rain per month.

All of this has a cumulative effect. Also bear in mind that over the winter months there is usually significant drainage through soils. Over the spring and summer months there is usually less drainage, with surface water moving up into the atmosphere through the forces of evaporation and plant transpiration. In a year such as this, moisture can get trapped at the turf/air interface. This results in boggy surfaces, humid conditions above the turf that can promote disease, yet reasonably dry soils from an inch or two under the surface. I have lost count of the looks of amazement on the faces of Committeemen during visits when plugs from bogs have revealed dry soils underneath.

4) The sheer quantity and frequency of rain has had a direct impact on turf quality. Turf needs to breathe and waterlogging over a period of time "drowns" the grass. Try sticking your feet in a bucket of cold water for a few days and see how healthy they look afterwards.

5) On courses that are prone to flooding as a result of the rising level of nearby rivers, drains alone cannot stop the river level from rising, but good drainage systems can get water away in hours of the river water receding rather than days or weeks as might be the case pre-drainage. This more rapid evacuation can significantly reduce damage.

6) The amount of rain and rain days has limited time when machinery could safely be taken out on the course without causing damage. This means there is more grass to cut when machinery can be taken out.

7) There have been very few opportunities to take a clean dry cut, resulting in piles of wet clippings left on the course. This can be dealt with if you have the right machines and staff level, though bear in mind the potential damage from taking more equipment onto the golf course.

8) Because greens have been soft, due to the large volume of rain, hand cutting has been necessary to prevent the risk of damage from use of the triple mower. This has reduced the man hours available for other work on the golf course.

This year has seen a catalogue of horror stories:

- Fairways being mown with pedestrian rotary mowers because the ground could not take machines.
- Courses having to close for weeks on end (one in Glasgow reportedly closed for 56 days this summer).
- Temporary greens being used more than the main surfaces.
- Complaints about untidy courses with clippings left lying and tyre ruts to fairways and semi-rough.
- Most ridiculous of all, Greenkeepers being blamed for all of this!



As if this were not enough to cope with, things could get a lot worse before the year-end. To the end of July, we had seen 72% of the average annual rainfall. That is getting on for three quarters of the year's rain in the first seven months of the year, which includes all of the spring and half the summer months. Figure 2 (shown opposite) shows how the average amount of rain recorded each month has fluctuated over the past decade compared to the previous 30-year period.

The important thing to note is that the amount of rain falling through the August to January period has increased by around 25% in the last 10 years in comparison to the 30 years before, i.e. our autumn and winter months are getting much wetter!

Such patterns obviously impacts winter play on golf courses considerably but it also affects the conventional approach to undertaking drainage and the main aeration operations. September and October have been the months for coring, Verti-Draining etc. The data, and our own experience, suggests that this cannot remain the case – it may simply be too wet to get machinery onto courses or to produce a positive result from such work should these rainfall patterns continue.

Having set such a gloomy scenario, what general advice can we give to Clubs suffering under such high volumes of rainfall?

FIGHTING THE TIDE

I would offer the following advice but note that recommendations should be considered in relation to the specific situation of each site.

- Members must be aware and accept the limitations of the site on which their golf course stands. If you are a Member of a parkland course based on clay then you cannot expect it to drain anything like as well as a links. Some inland courses may have coped better than others but this is more likely down to location and site conditions, e.g. elevated greens and freer-draining soils, than anything else.
- Turn to hand cutting greens, collars and tees if you have the staff. If you don't, the time spent hand cutting greens may be worth it if it reduces damage to these vital areas of the golf course, even if it means neglecting other areas. Miss out perimeter cuts with the triple to avoid tyre tracking, or worse. Bring greens in if softer areas can be incorporated into the surround satisfactorily for a time.
- Implement sound thatch and compaction management programmes throughout the golf course. Look at the alternative approach of deep scarification and sanding to thatch management. I can see another situation for potential conflict at Clubs this autumn, where the Greenkeeper wants to get in and undertaken some intensive renovation work and the Members want him to leave the greens well alone so they can enjoy any "Indian Summer" we may see. With thatch density likely to have increased through a wet summer and soil structure impaired by saturated conditions, we would strongly support the Course Manager in this matter.
- Carefully consider the best time for aeration programmes. Late summer or spring may well be a better option than the conventional September-October. With modern equipment very little disturbance is created so there is no real reason why this adjustment should not be accepted.

Figure 1. Rainfall for 2002 to July compared to average values

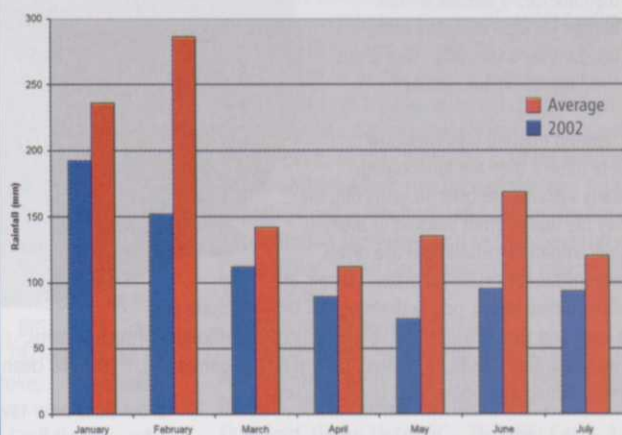
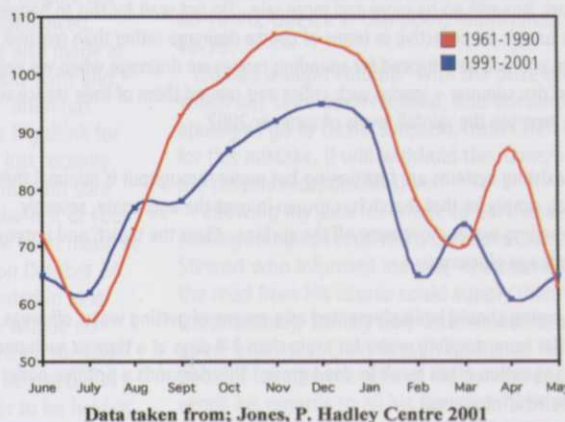


Figure 2. The difference in monthly rainfall during the periods 1991-2001 compared to the data from 1961-1990.



- Consider turning to straight sand top dressing of greens. Such a move must be site specific, as it should not be contemplated unless a decent irrigation system is available and it is complemented by regular slit/solid tine aeration.
- On greens, some of the best results with feeding this summer have been with liquid fertiliser. The reason? The liquid is absorbed into the plant more rapidly, with less chance of it being washed away or leached out. That is not to say that liquids are the best choice for spring or autumn feeds.
- The greens often tend to be the firmest areas on most golf courses. Why is this? Sometimes it is down to their construction but for most well established courses it is due to decades of aeration and top dressing programmes. Extend these programmes to aprons, collars, tees and landing zones and you will gradually see these firming up as well.
- Green reconstruction may have to be considered if poor drainage is the result of poor underlying soil condition, e.g. greens developed on clay or silt soils. For inland courses we would advise reconstruction to the USGA guidelines. Those who attended the joint SGU/STRI workshops on green construction in 2001 will realize that this is perfectly feasible, even on a fairly tight budget. Most of the courses we visit might be looking to rebuild up to half a dozen greens, the others responding well enough to timely aeration, thatch management and top dressing programmes.



9) Ensure that there are adequate outlets for drainage. Consider opening up and cleaning out old ditches or creating new ones.

10) Address fairway drainage. If wet fairways cause the course to close then allocate a decent annual budget for pipe drainage and aeration/sand dressing. Under this heading we would include:

a) Checking existing pipe drains to determine if they are functioning. Many systems are over 50 years old, the clay tile drains often blocked or broken. Later irrigation installations are often responsible for smashing drains. Often, the return of the native heavy, poorly draining soil over the drain pipe is seen and this, obviously, severely reduces the efficiency of such systems. Blocked drains should be cleared, broken ones repaired and, if feasible, clean free-draining aggregate used to replace soil.

b) Install new systems where necessary on a priority basis.

c) Initiating heavy sanding of wet areas in conjunction with aeration and plastic pipe drainage.

d) Learn a lesson from the deterioration in course drainage seen over recent years, brought on by more and more rain. Do not wait for this to happen in the future: be proactive in terms of course drainage rather than reactive. I am sure you will be criticized for spending money on drainage when we enjoy the next dry summer – ignore such critics and remind them of their stance when we next see the rainfall levels of summer 2002.

11) If existing systems are functioning but water throughput is minimal then it may simply be that thatch has grown in over the aggregate, severely impeding water movement off the surface. Clear the thatch and improve drainage efficiency.

12) Pumping should be implemented as a means of getting water off areas that suffer from standing water for more than 3-4 days at a time as such periods of saturation often result in dead grass. This demands a positive outlet into which to pump.

13) If low-lying areas are prone to almost permanent flooding then consider the option of developing additional water features. The input of a golf course architect, hydrologist and ecologist might all be required to assess the feasibility/desirability of such a scheme. I know that many of the site visits that Jonathan Smith and Fiona McIntyre, the Golf Course Advisors from the Scottish Golf Environment Group (0131 660 9480), have undertaken this year have been to discuss this option for drainage water management. The services of SGEG come free to Scottish Golf Clubs, this body being part-funded by the Scottish Golf Union and the R & A.

14) This year, in particular, has been a nightmare for mowing fairways and rough. High levels of rain over the summer create far more problems than through the winter period, simply because there has to be more machinery traffic over the course through the growing season to cut grass.

What do you do in such a situation? Ignore the growth because you know the damage you will do taking machinery onto the course, or mow on regardless? In either case, you are damned if you do, damned if you don't. It is all well and good saying wait until conditions improve so you can safely take machines out onto the course. If you said that in May, you would still be saying it at the end of July this year! Improving drainage and surface firmness through some of the ideas above would be our advice for the medium to long-term but those facing this situation might also consider using growth regulators to slow down growth, thus reducing the need for mowing.



Damage done by taking machinery over wet ground

15) In wet years, heavy worm casting creates muddy surfaces and directly impedes drainage. Steve Baker, Head of STRI's Soils and Sports Surfaces Science Division, has done extensive research on the control of casting worms. With ever decreasing chemical options, aeration/sanding is the most promising option with careful use of acidifying materials such as aluminium sulphate or sulphur for heavy soil sites a possibility. This latter approach has to be site specific in terms of application rates, which have to be evaluated through use of trial plots before implementation on the golf course, as severe turf burning can result from too high a rate of treatment. Boxing off clippings has been shown to reduce casting by up to 60%, though this may be impractical on many courses beyond greens, collars and tees.

You could already be implementing much of the above, but may need to expand current programmes to address the changes in the climate. If this is the case and you are still having a nightmare year then question how bad the course might have been without the investment in such procedures over the years. I can guarantee that it would have been a lot worse, though the "experts" in the Clubhouse would probably not agree.

DRY DREAMS

None of this comes without a cost and some of the approaches can be very expensive. However, I do feel that if golfers want better year-round playing conditions then they are going to have to be prepared to pay for them, particularly if they happen to be Members at Clubs whose courses are based on heavy soils or in flood plains. The weather data suggests that if you have not started these programmes already, where appropriate, then you had better start soon! This does pose something of a "Catch 22" situation. Wet courses mean less golf, so Members expect to pay less. Take this negative approach and you will get a decreasing return on play year on year, invest properly in the course and you should see improvements. Many Clubs think they are investing heavily in the golf course but, in reality, they are not. This really strikes home when a major refurbishment is need to the Clubhouse and the money for this is found quite readily, often amounting to many multiples of the sums put aside for on-course investment. Golf in Scotland, at least, is generally not that expensive. Indeed, the cost is low enough for many to be Members of more than one Club! No golfer will gladly reach into his or her pocket, but a £40 levy on 500 Members should bring in enough to more than adequately drain one or two fairways.

I would reiterate the point about the need for site-specific advice very strongly. We cannot give sound advice without some experience of the course. We are always delighted to hear from Course Managers and Committeemen but our first advice would be, "take a site visit".

For many Greenkeepers and golfers 2002 will be a summer to forget, particularly across the Central Belt and the West of Scotland. With general rainfall levels of 60-70% above average and some local figures well above that, May to September was a period fraught with problems. It has been gratifying to visit clients where the Greenstaff have received support and understanding from within the Club. Unfortunately, we have also seen instances of Greenkeepers being blamed for the soggy and sometimes unplayable condition of their golf course. Nobody feels the pain of poor conditions on the golf course more than the Head Greenkeeper. Course condition is a reflection of his professionalism. You will not meet a more dedicated profession than Greenkeepers. Few Members would put in the hours or work in conditions that have faced many Greenkeepers this year. Criticism of any Head Greenkeeper, based on a lack of information or thought, has to be disheartening. In a year such as this, the Greenkeeping staff needs as much encouragement as you can give them. Provide them with more resources and a lot more could be done. Investment in drainage, machinery and staff will have to be revised (upwards!) to cope with a wetter and milder climate. Let us hope that 2003 sees no more than average rain, which the majority of Greenkeepers will be able to cope with and produce the general high standard of surface and presentation that golfers have come to, sometimes complacently, expect.

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Don't wait for ditches to clean themselves!