

# WORKING

**The interaction of maintenance operations, by Steve Isaac, Regional Turfgrass Agronomist (Scotland), STRI**

## **Every action has a reaction**

The well trained greenkeeper knows all about golf course maintenance operations. He has a sound understanding of the need for mowing, scarification, aeration, feeding, watering and top dressing. This is very important, but how much thought is given to the way in which each of these individual operations affect any of the others? Every action has a reaction and the way in which works are carried out and, just as important, the timing of treatments will have implications for the rest of the management programme.

The golf course is ever evolving. Seasonal change is fairly obvious but there is also variation imposed by maintenance. Let us consider a few management scenarios and how individual operations affect the rest of the package of treatments.

## **Irrigation is not just watering**

Irrigation is a good place to start, particularly after such a dry summer. Watering has many benefits and pitfalls. Sensible irrigation can sustain growth and quality surfaces enabling other treatments to perfect the green, eg. routine mowing and verticutting. As water encourages growth at a time when without it there would be none there is a fertiliser implication. If the irrigation is to be truly effective in retaining root development through dry summers when the natural growth pattern is

for a return of roots towards the surface then complementary aeration and wetting agent applications are called for. If there is irrigation to teeing grounds; and tees possibly have a greater need for automatic watering than do greens, it allows for enhanced recovery from play and makes divoting with seed a sensible practice. Watering and seeding can only do so much, however, and to get the best result from repairs a package of measures has to be undertaken to relieve compaction and to get the seed into the soil.

The damage done to putting greens from over-watering has been well publicised – to such a degree that there are a few greenkeepers so afraid of the consequences that they deliberately under water to the detriment of summer surfaces. The action: Reaction principle is never more clear than with over-watering. Stimulating lush growth and thatch will demand an increase in mechanical operations, i.e. scarification and aeration, and a larger amount set aside in the budget for fungicide.

## **Building up headaches with top dressing?**

One maintenance procedure where the long term evolution of greens and its effect on other practices is often overlooked is top dressing. Firm, dry surfaces are vitally important to the possibility of year round golf in this country. For years clubs have been using high sand content top dressings to produce such greens. Many have not anticipated the need to adjust other practices to cope with improved drainage and firmness. Subtle changes to irrigation and fertiliser may well be necessary in relation to timing rather than quantity.

Indeed, with a deeper rooted turf there may be a requirement for less water and feed but in such a situation greens may warm up earlier in the year giving an opportunity to promote faster growing bent with judicious spring feeding.

We are seeing more variety in fungal activity to golf greens these days. The demise of mercury fungicides has been suggested as a cause but the accumulation of sandy dressing to former soil-based surfaces could well be a contributing factor. Fairy rings are far more common on sandy greens. Anthracnose is always reported as a pathogen favoured by compaction yet we see it frequently on compaction-free greens. Anthracnose is a disease that attacks weak annual meadow-grass and is becoming more prevalent on sandy greens where moisture and nitrogen availability are greater influences in susceptibility to this disease than is compaction.

The build up of a few inches of sand will also have an effect on pH and all that entails with regard nutrient availability. The incoming sand may have a different pH to the native soil and the lack of buffering capacity within the accumulated depth of sandy dressing can mean less stability of pH than was previously the case. Sand profiles growing turf fed with sulphate of ammonia tend to become increasingly acidic. It is often said that the pH you have is the best with which to work. This may be true provided that pH is stable but it is feasible that heavy programmes of top dressing, say combined with coring to get on top of thatch, may create unstable chemical conditions.

## **Punching holes in the maintenance programme**

Aeration is generally regarded as an essential element of any maintenance package but what of the consequences of aeration? The simple solution to thatchy greens is to core them, slit them, Verti-Drain them and so on. Is any consideration given to the turf that has grown quite happily on the thatchy ground, albeit most likely dominated by annual meadow-grass? It must be like being thrown out of a home full of luxurious comfort, the grass pampered by the retention of water and nutrients within the thatch hardly having to exert itself to enjoy an easy living. All of a sudden you are out on the streets and it is a battle to obtain enough to keep you going. Stressed turf is prone to disease and lacks durability under wear. The consequences can well be imagined but may have to be suffered, within reason, if the maintenance regime is to tip the balance away from annual meadow-grass in favour of bent and fescue.

On a grander scale, well aerated greens tend to be the driest, firmest place on the golf



# TOGETHER



course come the winter. Courses close more often these days because the ground between tee and green is unfit for traffic. If they stay open there is tremendous damage around greens and to other navigational routes which must be repaired in the spring just when all your efforts should be turning to the preparation of greens for summer play.

## **When time really tells**

Hopefully, the real consequences of everything that is done on a golf course is beginning to sink in. The interaction of maintenance operations is so great that it is difficult to grasp the "global" implications of any single treatment. Let us confuse the situation further by considering the importance of timing.

Back to irrigation and fertiliser. The dangers of watering and feeding late in the year are well known. Greens must be dry when entering the, potentially, wetter autumn months. Late feeds with nitrogen do encourage disease.

When do you need top dressing most? Not at the height of summer when the different grasses which make up greens turf are growing uniformly and true surfaces can be produced with the right combination of mowing,

grooming and verticutting. Dressings through the best growing months of the year interrupt verticutting regimes, blunt mowers and do little to nurture good relations with golfers. Concentrate dustings of dressing through the spring to true up surfaces and protect the turf from drying winds.

The best time for aeration is a great subject for discussion. Greenkeepers know that aeration is most successful when there is life in the soil and growth in the grass. Golfers want aeration kept to the winter. How often are greenkeepers forced to punch holes into their pride and joy in October, November or even deeper into the winter? How surprising to hear complaints about bumpy green from golfers come the spring when the holes from the late tining are still open! If greens are being cored or Verti-Drained with a view to heavy top dressing then timing is even more critical. The dressing must be worked in thoroughly to avoid smothering and weakening turf and bringing on disease. This means that the ground has to be reasonably dry and the grass must still be growing to absorb the dressing.

## **To conclude**

The examples discussed here are not complete

in themselves. No doubt other reactions to the actions mentioned, or entirely different systems of interaction, will come to mind as you sit down and think the processes through. It would be wrong to ignore the value of individual treatments. Turf would be difficult to look after if watering or aeration were omitted but they form part of the package and if you want pro-active, rather than crisis management, then it is vital that a cohesive strategy of complementary works is implemented.

Greenkeepers are, generally, aware of the consequences of most of their actions. Of more concern is the influence of committees who would like to dictate policy completely oblivious to the delicate balance needed to sustain quality turf.

The interactions of maintenance policy are too complex for the majority of laymen to understand and many members are not overly interested anyway, provided the course is in good nick whenever they are on it.

If only golfers could appreciate that managing quality turf demands a programme of carefully timed works which cannot always accommodate ever increasing golf fixtures and competitions.

That nut is a hard one to crack.