

Dressing for dinner

Most greenkeepers are very familiar with the work of topdressing but there is no harm in revisiting this topic for a timely review of the basics. Although I have aimed this article toward greenkeeping assistants I hope that the more experienced among you will look at this subject again, and perhaps ask yourself some questions about the topdressing policy on your course.

Spring is virtually gone now and summer is all but here which means that topdressing plans are now being pursued with a degree of urgency on many golf courses at the current time. Few misconceptions exist about the role of top dressing these days but as the readership of this august publication is wide ranging there is no harm in re-iterating what we mean by topdressing. Topdressing is the application of a bulky material for the purpose of improving playing surface quality. Although there may be some nutritional benefit incurred to the turf, topdressing should not be confused with fertiliser application since nutrition is not the primary objective of the exercise.

Like so many aspects of maintenance we should understand why we topdress our green, tee and perhaps even fairway areas. For the purposes of this article I have concentrated more on greens dressing than other areas, mainly because these are the number one priority for every course and also because the principles described here generally hold true for other surface types.

General Principles - Why topdress?

Topdressing aims to:

- Re-establish or improve surface levels.
- Improve soil characteristics / performance e.g. surface drainage, moisture retention, etc..
- Help to cover seed after renovations.
- Dilute thatch or aid its degradation.

Topdressing can also help to reduce artificial feeding, though this is not a primary objective.

Choices in topdressing Operations

Topdressing requires certain key decisions to be made before commencing operations. The main issues to be addressed are:

- Desired outcome
- Material choice
- Quantities
- Timing

Desired outcome

The specific desired outcome of topdressing your greens will depend almost exclusively on the site conditions on your course. Every course

will thus employ slightly different methods and/or materials but the overall objectives and desired end results from the work planned are usually the same i.e. firm, smooth and manageable greens. Unfortunately, it is easy to lose sight of these objectives, particularly when one considers that topdressing is one of those operations that is ongoing on the course. This is where a policy document (provided it is carefully used) can help to safeguard the course from detrimental changes in materials.

Material choice

The choice of topdressing material(s) will, of course, vary from site to site depending on the objective of the topdressing exercise. However, it is fair to say that sandy topdressings are generally the norm these days on most courses.

Traditionally, topdressings applied to most golf greens have been either a peat/sand/soil mix or a sand/soil mix (often a organic rich fen soil) In the past topdressing might have been described in terms of the ratios of mixing e.g. 3:2:1 which would equate

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to: 3 parts sand, 2 parts peat, 1 part soil. These days using peat is not so common. Although it is still employed, it is perhaps more likely that a peat substitute would be used instead though many mixes today do tend to be based around a sand/soil mix only.

Sand/soil mixes are generally quite sand rich, this usually making up around 70-80% of the mix with the remainder being the soil material, often with a relatively high organic matter content. However, the organic matter is so diluted by the sand that the final total in the mix is usually only 2-5%. In these modern times we tend to refer to topdressings as 80:20 or 70:30 for example, this referring to the mixing ratios of the main ingredients, sand and soil.

However, this description is a very loose one that tells us very little about the material itself. The sand could be very coarse, fine, or anywhere in between! Particles might be angular, spherical or somewhere between. The soil could be a organic rich fen soil or a heavy clay. Clearly the description of a material needs to be better

defined than a simple sand:soil ratio, it is important that the greenkeeper knows what it is he is getting. Failure to properly understand the significance of sand shape or size can lead to problems of poor drainage, inter-packing of particles (compaction), etc.

Fortunately, there has been a good deal of research, especially since the 1960's both in this country and abroad (particularly in America) to tie down more accurately the characteristics of rootzone materials. This has a direct impact on topdressing materials since these ultimately become incorporated into the rootzone. There is not space to go into detail here about the research findings but the USGA rootzone criteria sum up the essence of current thinking quite accurately. These rootzone mixes are employed for topdressing and make fine top dressing materials, even if they are not being employed on a USGA constructed green. However, they may not be a universally suitable topdressing material for all greens. If in doubt seek expert advice.

Quantities

The amount of material applied will depend on its type, the time of year and severity of preparatory operations e.g. scarification, aeration, etc., before dressing is applied. At one time topdressing operations were a lot less frequent but perhaps a degree heavier than they are today. Modern technology has made topdressing much easier and allowed more accuracy in controlling the depth of material applied.

Sandy topdressings work in so well that even heavy dressings present little difficulty to the sward or player, provided they are applied during the growing season. That is not to say that topdressing cannot be applied in the period between October and March when the grass is not growing or only showing very slow growth, but dressings at this time must be nothing more than a dusting of material (perhaps best applied using a fertiliser spreader rather than a topdressing machine). In practice we may see application rates ranging from 0.5kg/m² in winter or as summer microdressings to 3kg/m² after deep spike and heave or hollow tine aeration in late summer.



Timing

Local microclimate conditions may dictate precise timing. For example, a west coast links course enjoying the warming influence of the sea may be several weeks ahead in terms of sward growth than an inland course at the same latitude. Similarly, a course in the south of the country at low altitude may enjoy steady growth as much as 4-6 weeks before a course located on high ground in Scotland. Even courses in the same general geographical area may experience different growth due to differences in soil type (wetter clay soils take longer to warm in spring) and whether the course has a southerly or north facing aspect.

Spring and early summer are the ideal times for topdressing work as the grass is growing actively at this time allowing it to grow through the dressing rather than be buried by it. The golden rule of topdressing is to only apply material when the grass is growing, therefore the spring, summer and early autumn are the times of true opportunity. However, experienced greenkeepers know that a

watch must be kept at the start and end of the growing season for conditions that may hamper the growth of the grass and therefore its ability to push through topdressing material.

Why employ consistency in choice of topdressing material

As a general principle it is best practice to use as consistent a material as possible, so long as it is suitable. This helps avoid any risk of creating layers within the soil profile. Topdressing is an operation that is recorded for posterity in the soil profile, unlike others such as mowing, etc., which are only temporary in their effects. Some of you may recall how pure sand topdressing still shows on your greens as a root break at a depth of three inches even though it was applied twenty years ago! Layers of different materials create problems for plant roots as they are very sensitive to changes within the medium through which they grow.

A layer of different material presents quite a different set of environmental conditions which may

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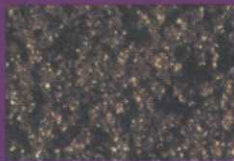


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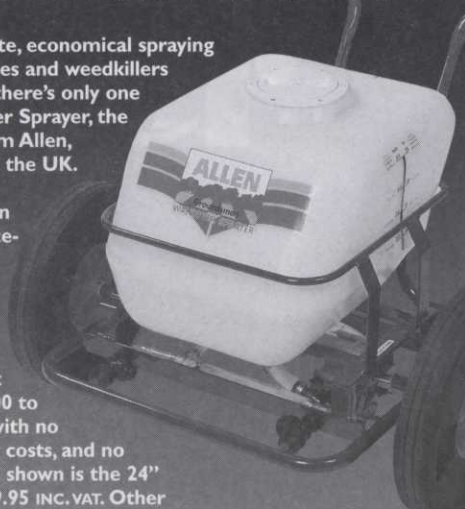
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challenge the survival abilities of the root or prevent further growth.

Within a consistent soil/rootzone changes are likely to be gradual, probably occurring over a distance of several centimetres or more. However, when a root comes across a layer of different material, perhaps a band of pure sand topdressing laid 30 years ago, the sand presents a sudden and severe boundary for the root to cross from one environment to another. Everything changes for that root, perhaps in a distance of less than a millimeter, one or more of the following factors will alter:

- Soil texture
- Soil structure
- Water availability
- Oxygen availability
- Chemical environment, especially nutrient availability

As if the above is not enough, the root may also be up against a change in microbial populations since all these changed environmental factors within the soil will inevitably have an effect on the bacteria, fungi, viruses and microscopic fauna that live here.

I often try to put this into a human perspective in order that people might understand just how serious this issue is for the plant root. Imagine you are walking down the road in a normal environment and as you take your next stride you enter a realm where the oxygen content is equivalent to that found at 30,000 feet. Not only this, you have to take a lung full of this depleted air and swim 100 metres underwater to the end of the road in acidic water that stings your senses while toxic compounds such as hydrogen sulphide make you nauseous. Further more, it is just possible that microbes begin to attack your body (for the sake of our analogy lets imagine piranhas nipping you!). Even if you were the fittest, strongest human being ever

born your chances of completing your journey would be even less favourable than winning the lottery every week for a year! In modern parlance - "Game Over!"

I should say that it is not always this hard for the plant, but changes within the soil certainly make life for a root very difficult indeed!

Why change topdressing materials?

Despite what has gone before there are several situations where changing topdressing materials may be warranted or unavoidable.

One justifiable reason to change topdressing is because the original material is not of a suitable type. Obviously, suitability depends largely on prevailing site conditions and objectives but some materials would not be suitable on any course. If in doubt check your material with a laboratory test, preferably also consulting with your agronomist as well.

The most common reason for changing topdressing materials is that suppliers may go bust or become unreliable. In the case of bankruptcy wait to see if the company is taken over or if there is another supplier dealing with the original source of material. If your current supplier becomes unreliable tell them of your concerns and your need to continue to receive the consistent topdressing material from them. If this does not work then changing supplier is the inevitable consequence but do see if anyone else supplies the same material or match the new material as closely as possible to the old one unless you are taking an opportunity to review the aims/objectives of your topdressing programme.

Occasionally the quality of the material supplied declines and is no longer acceptable or suitable. Some companies are better at checking

material quality than others thereby helping to avoid this problem as far as possible. Your first step should clearly be to challenge your supplier as to why there is a change. Usually a change in parameters is due to a quarry becoming exhausted and the supplier must therefore source material from another site. A final check using an independent laboratory is often useful from time to time.

The other reason that greenkeepers and course managers change topdressing material is that of changing overall objectives/aims from topdressing. The reasons for this may be to increase surface infiltration of water, improve moisture retention, acidify the soil a little more, etc. Before pursuing any change in objectives necessitating the use of a different topdressing do consult with an experienced agronomist. Taking time to do this may avoid very serious consequences in the future which might have implications for the course, club and even your career!

Conclusion

Topdressing is now a fundamental part of modern golf course maintenance. However, familiarity often breeds contempt and it is frequently the case that the overall objective of this important operation is lost from sight. This occurs particularly easily since the effects of topdressing may take years or even decades, to accomplish the desired aim. Over such large time periods it is easy to see how changes in staff (especially head greenkeepers/course managers) and even club committees can fail to follow the topdressing policy through to achieve their goal. Those responsible for course management must understand the objectives of topdressing the greens and be prepared to review practice on a regular basis to ensure the course management programme stays on track.