

# Another Decade of Piling It On

Following several decades of fairway topdressing in the Pacific Northwest, results are clearly positive, but does it make economic sense?

BY LARRY GILHULY

**D**ating back to the time of Old Tom Morris (considered the father of modern greenkeeping), sand has been the elixir for creating quality putting surfaces. “Mare sound, Honeyman,” was not a simple direction from Old Tom to keep his key assistant, Honeyman, busy applying ever more sand at St. Andrews. Rather, Old Tom knew the results when sand was added to help firm and smooth playing



*Viewing a soil profile tells a story about fairway topdressing programs much like rings in a tree explain its history. In this example, too much time passed between heavy sand applications, leading to organic layers developing in the upper rootzone.*

surfaces where the golf ball needed to roll. He very likely also saw how sand helped turf perform better and recover more quickly in areas where countless players focused around that little 4.25-inch-diameter hole to watch their orbs disappear. As they do today, players congregating near the hole caused severe wear and compaction that sand helped minimize. Add in that the rules at that time required the next tee shot take place within two club lengths of the hole and it is a wonder that greens even survived. Yes, Old Tom knew the



*Complete elimination of topdressing and aeration can rapidly lead to an impervious layer of thatch that takes time and expense to mitigate.*

value of sand, and his discovery lives on for producing fine-turf playing areas today. In the Pacific Northwest, the value of sand has extended far beyond greens, tees, and approaches, and now benefits year-round playing conditions and turf performance on fairways and, in some cases, roughs. So let's take a look at what has transpired with the use of sand over the past few decades, summarize what has been learned — both good and bad — about fairway topdressing, and discuss if it is a program that is economically sustainable today.

## HISTORICAL PERSPECTIVE

While the use of sand on playing surfaces dates back well into the 19th century, the use of high volumes of sand on fairways is relatively new. This article is the third in a series — see [Dressing Up for the 1990s](#) and [A Decade of Piling It On](#) — reviewing the use of sand for fairway topdressing that got its roots in the Pacific Northwest and other areas. Actually, it can be traced much further back to the days of pushup soil greens, soil-based tees, and especially putting green

approaches. Well before the 1980s, it was a common practice to aerate and topdress putting green approaches to firm these important play areas. While light and frequent topdressing was generally not completed as it is today, these soil-based areas in front of greens improved noticeably in regard to removing water earlier in the year and later in the fall. However, at the time, only small walking topdressers were available, making it impractical to expand this type of program to larger areas. This all changed with the introduction of slightly larger, pull-type topdressers in the 1980s.

## THE 1980S – A DECADE OF TINKERING

Many golf facilities in Washington and Oregon on the west side of the Cascade Mountains (which happens to be the side that receives very high annual rainfall totals) were created on



*Consistent applications of sand to match turf growth will result in a soil profile that is comprised of a good mixture of sand and organic material to enhance water movement and turf growth.*

clay soils or other poor-quality soils that were highly prone to compaction and wet playing conditions. This is still true today. Fortunately, several golf course superintendents, largely





*Light and frequent topdressing requires the proper equipment to achieve desired results of reduced soil layering, minimizing interference with players, and less damage to mowers.*

through the urging of Washington State University's Dr. Roy Goss, drainage consultant Carl Kuhn, and the USGA Green Section, noticed the difference sand had made on greens, tees, collars, and approaches. Once the larger topdressing units were introduced (a Mete-R-Matic® II was considered large at the time), the ability to expand to larger areas with heavy rates of sand was explored. Doing so was not cheap back then, with both sand and labor making it cost prohibitive. But did it work? Did it extend the playing season longer in the spring and fall? And most important for some, did it allow power carts that had taken over the game for many to drive on fairways during the entire year? The answer to all three questions was a resounding yes, provided of course that internal drainage was acceptable. At the same time, several negatives needed to be overcome, including:

- Cost of sand and labor
- High sand application rates that players and mechanics hated
- Time required to apply sand on very large areas
- Creation of layers (organic material and sand) in the soil
- Inability of carts to reach sand-topdressed fairways from cart paths because of extremely soft roughs that were not topdressed

### THE 1990S – A DECADE OF PILING IT ON

With the success being reported with sand topdressing on golf courses and sports fields, manufacturers responded by creating much larger units to speed the operation. One of these units is shown in the first article and became the standard for fairway topdressing at facilities that wished to invest in this method of drying up their golf courses. The units held at least five times more sand compared to previous smaller topdressers, resulting in far less time filling the unit. However, it did not take golfers (and mechanics, for that matter) long to overcome their initial pleasure with how the addition of this sand firmed up the golf course. The amount of sand required (generally a layer 0.25-inch thick) resulted in mower reels that were easily damaged and golf shots that resembled those in bunkers. A more light and frequent procedure was not available at that time, so the industry responded with the introduction of the same-sized unit with the capability to spin the sand to much wider widths at a rate that was far less noticeable to players.

The introduction of large, spinner-type spreaders for use on fairways changed fairway topdressing programs from one or two heavy applications made in the spring and fall to the ability

to add even more sand in a shorter period of time. Those with the funds to make this happen followed through; however, the rates being applied still caused damage to mowers, and players still did not appreciate the higher rates. In addition, an interesting observation was noted on virtually every course that started a fairway topdressing program. While fairways displayed a noticeable ability to withstand wet weather conditions, resulting in the use of power carts earlier in the spring and later in the fall, the carts could not access the fairways from cart paths. The combination of poor soils and the movement of earthworms away from fairways had resulted in very soft roughs that needed additional time to dry. Once this was noted, virtually every golf facility made the correct decision to expand fairway topdressing programs to roughs located within cart paths, or at least to entry and exit points from the paths.

### THE 2000S – FAIRWAY TOPDRESSING CONTINUES TO EVOLVE

After a decade of adding sand in 0.50- to 0.75-inch annual amounts, many golf facilities in the Pacific Northwest began to accumulate several inches of sand with good results. Golf courses that previously were required to keep



carts on paths all winter were now able to allow players to drive on fairways virtually the entire year, provided good internal drainage existed. Spinner-type topdresser usage continued as the preferred method of application, with many different models worthy of consideration. The cost of sand was always an issue, but economic times were such that more and more golf facilities invested in this program based on the positive results. Public facilities were also applying sand as their budget allowed because it increased revenue potential in the “shoulder” seasons. However, it was during the last decade that several distinct trends occurred (both positive and negative) that are worthy of review.

**Layers of sand and organic material.** Sand has been used on putting surfaces for decades. However, prior to the introduction of machinery that would allow for applications in a lighter manner, the practice of spring and fall aeration was often the only time sand was added. This resulted in layers of organic material developing in the soil between topdressing events, and this produced negative results.

The answer then, which is the same as it remains today, was the application of light amounts of sand based on growth of the turf. The elimination of layers improved water movement, turf growth, ball reaction on impact, and surface smoothness. However, when it came to fairway topdressing, the majority of golf facilities continued the policy of two heavy aeration/topdressings in the spring and fall. The result was improved surface conditions, yet the soil layers created mirrored the same issues with the greens. Turf growth, water movement/retention, and ball reaction are all impacted in a negative way when these types of layers dominate the rootzone and upper surface.

**Fairway topdressing never stops.** One of the most common, albeit minor, misconceptions heard often over the past several decades has been that once fairway topdressing starts, it never stops. While this is technically correct, the amount of sand applied can change significantly. Most courses starting a fairway topdressing program apply very large amounts of sand in the spring and fall to get an immediate impact. However, over time when the

amount of sand begins to reach a depth of four to five inches, the rate can be reduced, as the goal then switches from building a sand profile to maintaining it by continuing to dilute ongoing organic matter accumulation. Furthermore, once four to five inches of sand is achieved, aeration becomes much more straightforward and sand can be recycled.

**Recycling sand.** Based on the quality of the native soil, in most cases one of the negatives with fairway topdressing is the need to pick up aeration cores. This must be done until at least four inches of sand has built up over the native soil, and this is where the misconception occurs regarding the amount of sand that will be used “forever” with a fairway topdressing program. In reality, a significant reduction in overall sand use is realized because the aeration cores comprised of sand can now be “recycled” back into the soil profile. While fairway aeration will not result in a complete elimination of sand use, those who have reached this amount of sand accumulation report that they use up to 50 percent less sand at the time of aeration. This is a



*Heavy sand topdressing combined with solid-tine aeration is standard practice until enough sand (usually four to five inches) has accumulated to start “recycling” sand with standard core aeration equipment.*



perfect example that leads to the next notable trend.

**Cost savings versus cost cutting.** In 2009, USGA agronomists collaborated to write the article [Dollars and Sense](#). This article discusses a fundamental concept that almost all had to deal with during the latter portion of the decade. The cost of golf course maintenance has risen steadily, but when there is an economic downturn, something has to give. In the case of fairway topdressing, many were forced to change their strategy completely and go into a cost-cutting mode. In the sudden absence of sand, organic matter was allowed to accumulate without restriction at the surface. Conversely, for those who had enough sand near the surface, it became more of a cost-savings approach. While some needed to cut the amount of sand applied in half, they also called upon their existing reserves by recycling the sand through aeration. This simple cost-savings approach did not impact playing conditions too dramatically and proved to be a practical and economical way to minimize the overall budget.

## 2010S – THE HERE AND NOW

Now that we have entered the fourth decade of fairway topdressing, many lessons have been learned regarding what is essentially an expanded use of sand following the same principles for topdressing putting greens. While the intensity is not the same and the cost is too high for some, following is a compilation of observations noted in the early portion of this decade that are expected to continue.

**Research has shown that sand size is not the primary factor in producing good results.** One of the questions often asked during the early years of fairway topdressing was if sand used on fairways needed to have the same physical characteristics as sand used for putting greens. Based on many visits in the last 30 years, the anecdotal answer to this question was always no. Nonetheless, it was always advised to use sand that was coarser in texture, rather than finer, compared to the existing underlying soils. This observation was confirmed through USGA-funded research and summa-

rized in the article [Topdressing Fairways: More is Better](#). This research showed that the distribution of the sand is far less important than the total amount added. It also showed a very good way to address the issue with layering of sand and organic material in soils.

**Light and frequent rates produce the best results.** Over the past decade, a few examples of golf facilities applying sand at very light rates through



*While fairway topdressing is not for every golf facility due to economic reasons, addressing approaches should be considered by all.*

the entire growing season have been observed. In every case, soil layering is minimized, especially during periods of very active turf growth, and the upper rootzone looks far more similar to green profiles with positive results reported. Two good examples can be found in the USGA's "How It's Done" presentation [Light and Frequent Fairway Topdressing](#). For those that are dry enough in the winter, more and more golf facilities are opting to topdress all winter long on a slightly less frequent basis. This makes perfect sense, as turf growth in the western portion of the Pacific Northwest does not shut down entirely during the winter. Since light topdressing should be timed with plant growth, light applications of sand on greens, approaches, and fairways often occurs every four to eight weeks during the slower-growing portion of the year.

**Recycling should and will continue.** There is no question that aeration of sand-topdressed fairways offers a great way to save money while not compromising playing conditions. However, any decision to completely eliminate sand topdressing and aeration can rapidly turn into a major issue

based on the location of your golf course. In the Pacific Northwest, one membership had had enough of heavy sand applications in the 1990s and said no more to both topdressing and aeration. This quickly proved to be a big mistake. In just one year a thatch layer 0.50 to 0.75 inch thick developed. It led to major issues the following spring and summer. If you have enough sand already near the surface, at the very least increase aeration to recycle

the existing sand until funds return to add more sand in the future.

**Is it economically justified?** There is no question that fairway topdressing has a very positive influence on playing and growing conditions in the Northwest. With a moderate climate that allows for turf growth nearly all season long on the west side of the Cascade Mountains, the incremental addition of sand has produced fairways that are both playable and accessible to carts at many sites. For those golf facilities that jumped on the topdressing bandwagon a few decades ago, there is no question that the decision was correct for both playability and turf performance. But what about those that are only a few years into fairway topdressing or have not considered this program due to the high cost of sand? Does it make sense from an economic standpoint? And is it something that should be considered in every part of the U.S.?

While the answer to the last question is an emphatic no if you already have high-sand soils, healthy turf, good drainage, and sand costs are too high. However, this does not mean it should be completely dismissed. When it



*One of the negatives of fairway topdressing is the constant need to raise irrigation heads. Using covers minimizes the frequency and protects this important portion of the golf course.*

comes to the application of sand on areas other than greens and tees, the following should be considered by every golf facility at every budget level.

**Treat collars and approaches like greens.** Recent articles have been written on the importance of treating putting green approaches in a manner similar to putting surfaces (see [Don't Make Your Green Unapproachable!](#) and [Approaches: A Key Part of the Golf Course](#)). These articles and others focus on a relatively small area in front of greens that can be treated like greens but are generally not constructed in the same manner. While approaches are not technically fairways, in reality they are if the soil is the same. Regardless, the combination of regular aeration, heavy sanding following aerations, and light topdressing during the growing season will create the same type of soil profile seen on topdressed fairways. If the budget does not allow for all of the approaches to be addressed in this manner, provide a demonstration on one or two approaches to show decision makers and course officials the difference between topdressed and non-topdressed playing areas. One thing is certain — the players will like it.

**Apply more sand to high-traffic areas near greens.** Sand is used to minimize the negative impacts of high traffic and prevent soil compaction. While areas around tees should not be considered for extra sand use unless the budget can handle it, those areas near greens are very much in play and should receive regular aeration and sand topdressing. Again, the locations are small yet very important for play and turf performance. Players certainly notice the difference between bare soil and turf coverage. They will come back to those golf courses that address



*Heavy native soils on fairways or approaches benefit from regular sand applications while driving earthworms to search for a new home.*

these types of small areas that directly impact play.

**Demonstrate fairway topdressing on a smaller area based on your budget.** While the preceding two areas are small and do not constitute significant expense for noticeable improvement, the application of large amounts of sand over many acres is no small investment. However, if your golf facility has a fairway or two or even portions of fairways that are troublesome in regard to excess moisture retention, give fairway topdressing a try. In many cases, this simple addition can make a major difference.

Every golf facility can answer the ultimate question of whether fairway topdressing is economically justified for them. For those with larger budgets and a full membership, the answer is likely yes. For those struggling financially, the answer may be more recycling of existing sand or focusing on those areas of most concern rather than every acre of fairway. At the very least, every golf course can benefit from regular sand applications on approaches and around traffic areas near greens. All told, there is one thing that cannot be denied. After another decade of piling it on, golf facilities continue to see positive results with firmer, faster surfaces that exhibit better turf performance and more cart accessibility on a year-round basis.

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