

With the Grain or Against It

The Continuing Challenge of Sand in Bunkers

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What do you think golfers complain about most on the golf course? Green speed? Hole locations in unfair spots? Fairways too wet? Not enough water in the ball washers? Based upon the travels of the 16 USGA agronomists who consult at more than 1,600 courses annually, the answer probably would be the sand in bunkers.

Many golfers assume bunkers are among the easiest parts of a course to maintain, requiring little more than a quick daily run-through with a raking machine. That's why they feel compelled to complain about sand color, depth and hardness or softness. Yet bunkers can cause just as many headaches for superintendents as for players.

It is far easier to keep a set of 18 greens playing to uniform speed and firmness than to ensure dozens of bunkers have the same characteristics. A green can be mowed, rolled, verticut with blades and punched with holes by an aerifier. There are few preventative maintenance practices for bunkers. That said, under the right circumstances a bunker can remain playable for up to 10 years but the wrong factors can cause problems from the start.

Three characteristics dictate how a bunker will play: the physical attributes of the grains, maintenance practices and weather. Some sands placed in a bunker at the top of a windy ridge will perform poorly, just as they would in an area with inadequate drainage.

The best possible sand is like Goldilocks's favorite porridge: not too smooth or rugged, not too big or small, not too round or angular. If sand grains fit in a medium range of size, shape and texture, the overall surface benefits. Rounded, smooth sands can be too soft and unstable, like a bag full of marbles, and will produce "fried-egg" lies; grains with many sharp edges and irregular shapes can pack too tightly and produce something closer to concrete.

Weather affects sand more than most golfers realize. From the day it is put in place, bunker sand is subject to contamination. The tiniest wind gusts deposit dust and debris, and heavy rainfall or irrigation runoff causes washouts that introduce soil from bunker faces. Each time this happens

the sand becomes polluted with tiny silt, clay and other particles. Over time the open spaces between the sand grains become plugged, resulting in a firmer surface. When golfers complain long enough about its hardness and dark color, the contaminated sand is removed and replaced with new sand.

Course superintendents can take steps to keep sand at its proper surface texture. Soft sand can be made to seem firmer by compacting it with a tamper or vehicle, wetting it to make it more stable, reducing its depth and using shallow-toothed rakes to avoid loosening the sand. Hard sand can be made to seem softer through frequent attention with long-toothed rakes, keeping it dry, increasing the depth of the sand or periodically adding small amounts to dilute the impact of the silt, clay and organic contaminants.

Superintendents face continual battles with sand. Each bunker takes on individual characteristics, just as a green that is in shade most of the day will play differently from one in direct sunlight. Cost and logistics make it practically impossible to renovate all bunkers at once, so many courses juggle their programs, replacing the worst bunkers as the need arises. The largest cost of a renovation program is not the sand, but trucking it to the site.

A successful sand-maintenance program is built on selecting quality sand grains, adjusting maintenance practices according to the inherent properties of the sand and weather, and gaining the understanding of those who play the course. Many times that takes just a simple reminder to a golfer that a bunker, after all, is a hazard meant to impede the player from reaching the hole.



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