



Mechanical sand rakes are a labor saving necessity in large bunkers like this.

Photo by Darren Davis

Hunker in a Bunker

BY JOEL D. JACKSON, CGCS

I'd like to thank the 30 superintendents who took time to share their bunker management techniques for this article by answering the Bunker Questionnaire that we sent out. Mike Hamilton, CGCS of the Grey Oaks CC also wrote a great article on how he has managed to reduce labor hours for bunker maintenance.

Playing conditions in sand bunkers, formerly known as *sand traps* before the USGA deemed the term politically or technically incorrect, are receiving more attention all the time. The chief complaint being that bunkers are too soft. Too many *fried egg* lies out there. And I suppose poorly designed and constructed bunkers can also be too wet if they don't drain properly. As we respond to the increasing demand for excellence, we find there are some basic guidelines that can improve our bunker conditions.

The number one critical factor that

will reduce or eliminate most of your problems is to use the proper sand in your bunkers. That answer is repeated over and over in the answers to solving soft and wet conditions. What is the proper sand?

The proper sand is the one you selected based on its physical properties: size, shape, composition, angle of repose, and color. These factors excluding color will dictate how well the sand will pack and firm up for that *perfect lie* we are asked to deliver. How often you rake and cultivate to produce the desired conditions is a matter of individual preference.

Your peers are using at least 10 different types of sand in their bunkers. I will list them here with definite concern for some of the choices. The number in parentheses is number of courses reporting:

Ortona 200 (3); **Standard's M-37** (7); **Standard ?** (4); **FM200** (3); **DOT** (2); **"220"** (3); **GASH 200** (1); **"180"** (1);

Jahna Trap (2); **Misc ?** (4).

I challenge you to call your vendor and get the exact specifications.

The respondents to the survey are basing their answers on maintaining as few as 22 bunkers to as many as 126 bunkers per 18-hole course.

All of the reporting courses use mechanical sand rakes. They are a part of modern golf course management. Hand raking is still used in steep pot bunkers and other green side bunkers by choice. Even the modest hand rake has undergone modification from a traditional rake with 2 inch tines to curved and cylindrical shapes with one-half inch teeth. Courses spend anywhere from 2.5 hours to 24 hours to complete one raking cycle: 37% of the courses rake bunkers four to six times per week; 30% rake daily; 30% rake three times a week; and 3% rake twice per week.

The choice of attachments was divided mainly between leaf rakes with or

without tines; grooved flaps with or without tines; and the old cutter bars with flaps. It isn't surprising to find private clubs and public courses using different schedules. Resorts may only see their guests once and so they tend to rake more often. Private clubs tailor their routines to the members wishes and hopefully see a higher level of golf etiquette and participation than public venues.

Edging routines also varied widely depending on practices, available labor and expectations of the clubs. Weekly and bi weekly routines were common, followed by monthly and bimonthly to a minimum of three times a year. String trimmers, stick edgers, and reciprocating edgers have become the predominant edging tools.

Only four superintendents reported using non-selective herbicides to chemically edge bunkers. On the other hand, eleven courses reported using PGRs to reduce flymowing. Only four courses said they overseeded bunker lips.

On the issue of correcting soft bunker conditions, suggestions included: Using proper sand; reduce raking frequency and use of tines or cultivators; hand water; tamp; use granular wetting agents; tire packing (a PGA recommendation); drag mat and rental compactor.

Concerning wet conditions, the offerings are: Install drains; repair and flush drains; shovel silt and debris before raking; use tines to break up crust; increase use of tines and raking frequency; allow to dry before raking (USGA recommendation). For water damage and washouts the first response is judicious use of push blades on sand rakes to put sand back in place. Good old shovel and rake work is also required.

Chronic washout areas are corrected in the long run only by diverting runoff from the bunker or sodding or rebuilding a bunker face that is too steep. Remember "angle of repose" as one of those critical factors in sand selection? Construction sand has an angle of repose of 35 degrees. Any bunker face steeper than that defies the laws of physics. Golf course architects take heed!

Last but not least is a discussion of where to put hand rakes. Sixteen of the courses put the rakes on the course.



Photo by Darren Davis

String trimmers, reciprocating edgers and stick edgers (pictured) have all but replaced square point shovels and halfmoon spades for edging bunkers.

Nine said they put the rakes *in the bunkers*. Three said definitely on the course but *out of the bunkers*. Four more just said *on the course*.

For your information, the USGA recommends that rakes be placed outside of the bunkers. The other fourteen courses put the bunker rakes on the golf carts. The big drawback for rakes on carts is that golfers are forever forgetting to bring the rake back to the cart.

Cary Lewis at the Stouffer Vinoy GC has a great idea to help alleviate that problem. At the Stouffer, they have two remote rake stations stocked with extra rakes on holes #3 and #13. Those with rakes on the course cite member preference as the dominant reason followed by walking golfers. Those with rakes on carts cite aesthetics, theft, damage and labor savings as the reasons for their choice.

Bunker management is entering a new era. The demands and expectations of improved playing conditions includes bunkers. Materials, equipment and techniques are improving rapidly. I hope this overview helps. Check out the next article to see how Mike Hamilton solved some specific problems at his course.

Bunker Maintenance at Grey Oaks C.C.

BY MIKE HAMILTON, CGCS

At Grey Oaks Country Club we have 96 large bunkers with steep faces, so it has become essential for me to find ways to efficiently maintain them. With the help of a Trims computer program, I have always tracked the labor at Grey Oaks. The highest labor area has always been our bunkers.

In our first year of existence we spent 16,250 hours in labor on bunkers, which was 14.2% of our overall labor. The following year we spent 15,000 hours in labor on bunkers, which was 9.3% of our overall labor. This year that percentage is down further to 8.7%. How have we reduced the labor on our bunkers? With chemicals, new equipment and training.

It is truly amazing how far bunker maintenance has come since I was on a crew. On a good day three people could edge 15 bunkers a day.

Today, I can send two people out and they can neatly edge all 96 of my bunkers in one day. Wow! Now that is a big-time money saver. How is it possible to do