

Best bunkers

soak up heavy rainfall

by STEVE & SUZ TRUSTY

After nearly 18 inches of rainfall within the last few months of 1995—including one day-long, nine-inch deluge—Fred Wong and Ed Okamoto were beginning to feel like kids stuck in a sand box.

With 77 bunkers on Wong and Okamoto's Kauai Lagoons Golf Club in Hawaii and 109 on the Kiele Course, crews were constantly reshaping and reworking the sand.

It was obvious to these superintendents that sand bunkers serve functions other than aesthetics. They separate sections of the course and help define areas of play, control ball movement, "save" balls from landing in water hazards, and even serve as targets for golfers.

Your golf course may not have as many bunkers as Kauai Lagoons, but it is equally important to decide which of these roles each bunker on your golf plays and define its effectiveness in that role.

Traffic control

Bunkers help control traffic, but turf wear and compaction may be caused in the surrounding turf. Turf-covered mounds or hollows that would slow and spread out traffic might have less negative impact. More flexible traffic control can be achieved with movable landscape features such as flower beds.

Think "playability." How will balls be landing?



Wet bunkers that drain poorly are tough to maintain and are a constant source of golfer complaints.

How will they be played? Bunkers are hazards and should present a fair challenge, not an impossible one. Look at the bunker's placement, its overall angle, slope and lip from a player's perspective. How extreme is the frustration level for the beginning golfer and for the course's "average" player?

If funds are low, try grassy hollows and mounds as an option to bunkers. But make sure they can be mowed easily.

If you rebuild, assess the impact of past and potential problems.

Consider the impact of prevailing winds, water flow patterns, and player and cart traffic flow. Gauge the accessibility of the surrounding turf—especially the greens—for mowing, aeration and other maintenance needs.

The steeper the banks of sand within the bunker,

WASHOUTS

the greater the "wash" during heavy precipitation. While vertical lips help define and edge the bunkers, too deep or steep a lip can contribute to washing. Washing changes the placement of the sand and cuts down the depth on the slopes by about two to four inches, and adds to the flat areas unevenly.

Washouts also bring silt into the bunker. Compaction in low areas will increase and hamper the natural drainage pattern. Following washing, valuable crew time must be allocated to clean the bunkers and rework contours.

Larger, flatter bunkers with curving sides rather than sharp banks reduce washing, and make it easy to use bunker rakes instead of the more time-consuming hand raking.

Are some slopes so steep that walk-behind mowers are required? Could these slopes be reshaped without too much effect on course aesthetics to allow mowing with ride-on units? Cutting the steepness of the turfed slopes also reduces their exposure to sun and wind, lessening desiccation and the need for supplemental irrigation.

Maintenance concerns

Less extreme variations on constructed bunkers can cut maintenance time. Scalloped perimeters look showy but are tougher to mow and edge. Consider altering the scallops to more flowing curves, or changing the overall perimeter to a straight-edged

A bunker with poor drainage leaves a lasting reminder of heavy rain. Find a sand that drains well.

oval or circular pattern.

Edging around the bunkers is necessary to keep turf from invading and to maintain the sharp, precise appearance. Experiment with the edging methods of mowing, string trimming and hand edging to find a combination that meets expectations but trims maintenance time. Learn which crew persons are most skilled at each type of edging, and let them handle the job regularly. □

—The authors are principals at *Trusty & Associates, Council Bluffs, Iowa.*

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Sand-aids

—Choose sand that has visual appeal but also the right gradation and physical characteristics.

—Bunker surfaces need to be firm, but not hard or crusted. If possible, establish precise specifications of particle size, shape and composition.

—Avoid sands with very fine or coarse particles. Larger particles may cause problems when "blasted" onto the green during a shot.

—Repeated contact with coarse sand will be abrasive to mowing equipment.

—Determine the sand's degree of contamination, and regard any material other than the sand to be a contaminant.

—Look for some degree of compatibility with the putting green sand and topdressing materials.

—Avoid sands that are too soft and thus likely to break down faster.

—Choose a sand that drains well. Test various materials in different bunkers prior to the change over.

—Ask crew and players for their opinions.

—If the sand is of good quality, but drainage is still a problem, examine the subsurface drainage system. Perforated drain pipes sunk into a gravel-filled

trench that extend beyond the bunkers are preferred. Problems may be due to channeling greens drainage into the bunker drainage system.

—Sand in different batches may be inconsistent. Buying from a local source may save you money, but be sure he has sand in sufficient quantities to meet your needs.

—Before you buy, ask other superintendents about the reliability of the supplier and the sand quality.

—S.T.

