

appropriate material for topdressing. In practice, most golf greens are topdressed with unamended sand. Obtaining the original mix may be difficult, and, as mature greens generally have excessive organic matter present, a mix may be unnecessary. The topdressing material must be dry to apply and work into the green surface, so most mixes are destroyed because the organic matter and sand tend to separate in layers.

Researches over the past 25 years plus field experience have narrowed the sand particle size range recommended for topdressing. While there are still differing opinions as to whether sands should be on the coarser or finer side, most would agree that the range should be between 1.00 mm and 0.10mm with less than 10 percent of the particles falling outside of this range.

Quite frequently we encounter the practice of using a uniform but very coarse sand to topdress because we have a green which has infiltration problems. The reasoning behind this practice is generally based on questionable assumptions. Let us look closely into this practice. A typical aerifier produces 36,000 holes per 1,000 square feet. These holes, assuming we use 5/8-inch tines and remove a 3-inch core, will hold 144 gallons of water. A 1/4-inch rainfall over 1,000 square feet equals 150 gallons of water. If internal drainage is good, we have opened a green's subsurface to its surface to accept water. If internal drainage is poor, the second 1/4 inch saturates the surface unless we have excellent surface drainage. But we can't just leave these holes open so we topdress heavily with sand.

Let's look at three equally available topdressing sands: (1) a very uniform and very coarse sand with a compacted infiltration rate of 589 inches/hour; (2) a very uniform medium to coarse sand with a compacted infiltration rate of 44 inches/hour (typical of sands used to make golf green mix); and (3) a very uniform medium to fine sand with a compacted infiltration rate of 31 inches/hour (typical of the sand used unamended). If we fill the 1,000 square feet of holes with sand they no longer will hold 144 gallons of water. Sand (1) holds 51.8 gallons, sand (2) holds 56.2 gallons, and sand (3) 53.2 gallons. Even in the short term there is no real advantage to using the very coarse sand.

What about the long term effect? If in time we continue to use this very coarse sand, we could develop a surface medium with a steep water and, therefore, very droughty, retention curve. But both the medium to coarse and medium to fine sands have very good water retention curves even though they have relatively high infiltration rates.

Getting through the buildup of surface problems of many greens may not be possible with conventional aerification equipment. Use of deeper penetrating equipment such as the deep-tine aerifier, the new coring machine or the new Verti-groove may be necessary. Poking holes and spreading sand merely because it is considered a "standard practice" is no basis for an aerification and topdressing program. Nor should your program be based on what your neighboring superintendent is doing. He may be just a cookbook superintendent who is always fighting major fires with a small garden hose. The problem solving professional superintendent thoroughly analyzes your green problems, sets up a program to solve these problems, and then maintains a management program to prevent them from redeveloping. One such program might be a light frequent topdressing program with the "right sand" plus aerification just frequent enough to maintain a balanced breakdown of organic matter.

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## Startling Results from NGF/Market Facts Golf Participation Study

Twenty-five percent of the nation's 17.5 million golfers account for 77 percent of all rounds played, according to a major golf participation study conducted in October of 1985 by the National Golf Foundation and Market Facts, Inc., a Chicago based marketing research company.

"When we looked closely at frequency of play, we were very surprised to find that the small group (25%) of avid golfers account for the vast majority (77%) of rounds played," stated **Dr. Joe Beditz**, NGF vice president of research. "Conversely, golfers who play less than eight times a year, a group that represents half of all golfers, are only responsible for seven percent of all rounds played."

This is the classic 20/80 rule as applied to golf consumers," remarked **Dr. Beditz**. "A small proportion of golfers account for most golf activity, and, I suspect, most golf product purchases."

The research showed that eight percent of all Americans played golf at least once in 1985, and that 21 percent of all golfers play once or twice a year, while the average golfer plays between 8 and 24 rounds per year. Golf participation was highest among the 30-39 age segment (10.4%) and lowest among the under 20 age segment (3.9%). Males are about four times as likely to play golf than females.

(cont'd. page 23)

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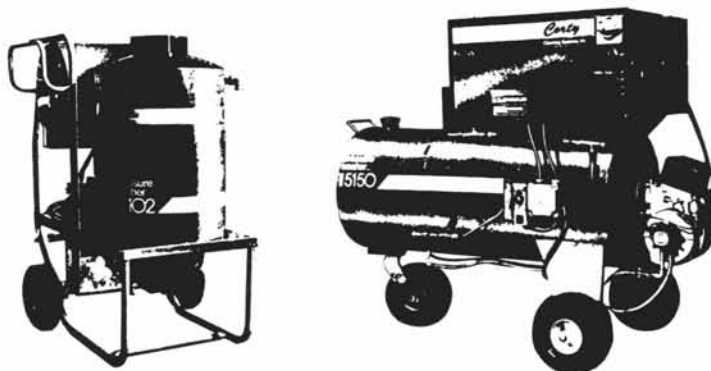
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The north central area of the country was found to have the highest regional golf participation rate (11.5%). The study also revealed a strong relationship between household income and golf participation. Households with total income over \$40,000 are 3 times as likely (13.4%) to contain a golfer than households with income less than \$20,000 (4.4%).

"This is the first definitive study of the American golfer," remarked NGF President **David Hueber**. "The results so far have been startling and we will use our findings to shape our promotional efforts and to direct our resources in areas that will give us the greatest yield."

The NGF/Market Facts study, which featured a nationally representative sample of 20,000 households, is the largest of its kind ever conducted solely for golf. Two reports will be published in the spring of 1986. The first, entitled "Golf Participation in the United States," will present the results of the October survey showing how many golfers there are and where they are located. The second, entitled "The Golf Consumer Profile," will be based on the results of a follow up study to be conducted in January of 1986. This report will present much more detail on the characteristics of the American golfer.

#### FREQUENCY OF PLAY

Number of Rounds Played Per Year	Percent of Golfers	Percent of Rounds Played
1-2 rounds	21%	1%
3-7 rounds	28%	6%
8-24 rounds	26%	16%
more than 24 rounds	25%	77%
	100%	100%



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