

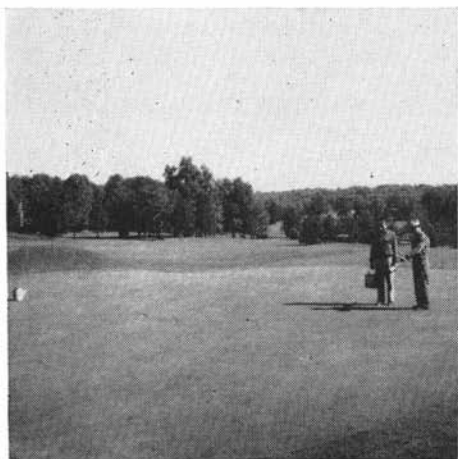
Cup Changing Technique At Wee Burn

By A. M. Radko

Eastern Regional Director, USGA Green Section

The use of good technique and adequate care in the changing of cups on a putting green pays dividends. One only need look at a green where the plug placed in an old cup location has been scalped by the mower to realize that this is a job that requires skill and care.

The technique has been so thoroughly mastered by Tom Testo, superintendent, and Steve Kulscar at the Wee Burn Country Club, Darien, Conn., that it is difficult to find the previous location of a cup. The following pictures show details of the operation:



New site is apart from old one.



Cup is removed carefully.



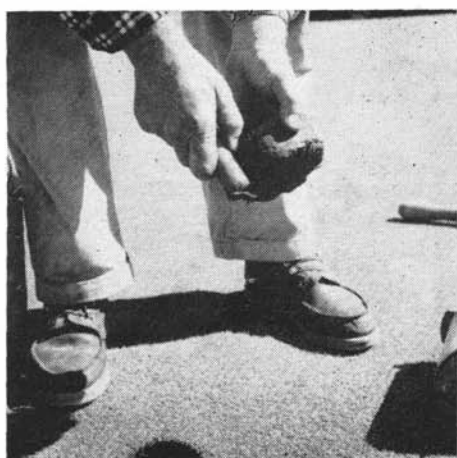
Top soil is placed in hole . . .



. . . and is tamped with stick.



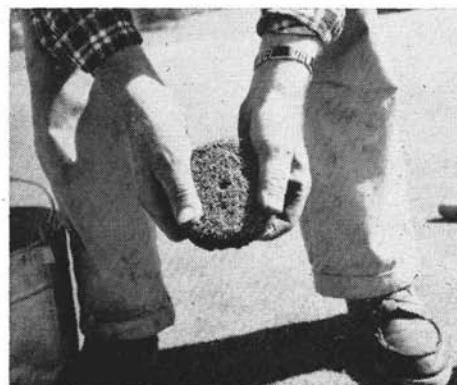
Plug is shaved at bottom.



Thickness is checked against . . .



. . . depth to tamped soil. Adjustments by shaving plug or adding top soil insure even surface.



Plug is broken by pressing up with fingers, rotated and broken again.



Plug is placed into hole and surface is pressed and firmed with thumbs.



Edges are separated to release grass blades forced into the slit around perimeter.



Perimeter is firmed as plug is watered.



Job completed. Can you find the plug?

Growth Of Bentgrass Roots As Influenced By Temperature And Management

By JAMES B. BEARD
Purdue University, Lafayette, Ind.

A critical evaluation of the effect of temperature and management on the growth of bentgrass roots was conducted in controlled-climate chambers, using especially built root boxes 10" square and 16" deep. One side of the box consisted of a slanting glass side for observing roots.

On December 23, 1957, dormant creeping bentgrass plugs, 4 inches in diameter, were taken from the experimental putting green, sliced to a thickness of 1/4" and placed in the root observation boxes. Two boxes were placed in each of the following constant-temperature chambers, 60°, 70°, 80° and 90° F. Each of the temperature rooms had a constant day length of 12 hours. For each temperature there were two cutting treatments, cut daily at 1/2" and uncut.

The root elongation was marked and measured daily on the glass side of the boxes for a period of eight weeks. From that date the average rate of root growth per day was calculated. The average daily growth in inches of bentgrass roots for the four temperatures for the cut and uncut treatments was:

Cutting Treatment	Temperature in °F			
	60° in.	70° in.	80° in.	90° in.
Uncut	0.32	0.33	0.39	0.18
Cut	0.18	0.17	0.20	0.13

Note that the growth rate was greatly reduced in raising the temperature from 80° to 90° under both cutting treatments. Through the daily measurements of root growth on both cut and uncut cultures, it was observed that the growth of individual roots was not uniform but cyclic in nature. Within a ten-day period the growth rate of individual roots varied from 1" to 0.1".

Furthermore, the 90° F. temperature condition reduced the number of roots, the depth of penetration and the thickness of roots. In addition, the roots under 90° F. temperature condition were not a healthy white color but were brown and inactive.

Upon termination of the root elongation studies, the roots were removed from the boxes, washed free of soil, oven dried at 70° C. for 24 hours, weighed and ashed in a muffle furnace at 700° C. for 4 hours.

Total weight of the organic constituents