Soil compaction can increase water use on recreational turfgrass sites by 25 to 50%, primarily by promoting light, frequent irrigation due to low water infiltration rates. Evaporation losses are enhanced by the moist soil surface in conjunction with an open canopy that is often warmer from solar radiation absorbed by the soil. Also, water losses may occur by greater runoff or leaching beyond the shallower root systems compared to noncompact ed turfgrasses.

The primary cultural tool to help alleviate soil compaction is cultivation. During 1986, we initiated a research project to study the relative effectiveness of five cultivation techniques in alleviating compaction stress with particular emphasis on factors influencing water use efficiency. Since compaction affects water relations, each treatment/replication combination required a research plot that could be irrigated separately from all others. This system was installed and grassed with Tifway bermuda. Respective plots have been subjected to compaction several times and cultivation treatments applied twice. These treatments will be continued with intensive data collection in 1987 and 1988. In this joint project between the University of Georgia and USGA, all scientific equipment and technician support to be provided by University of Georgia has been obtained.