

# The Hidden Cost of Trees

The cost of planting a tree is just a small down payment on a large bill.

BY DAVID A. OATIS



It is one thing to spend money to preserve and care for good-quality trees, but most courses have numerous poor-quality trees that add to maintenance costs without providing much benefit.

*The problems trees cause for turf are well documented, and many articles have been written on the subject. Surprisingly little has been written about the costs of trees on golf courses. Many golfers assume that planting a tree is the extent of its cost, but nothing could be further from the truth. The cost of planting a tree is merely a small down payment on a bill that, for some courses, runs into hundreds of thousands of dollars annually.*

Although we appreciate their beauty and admire their majesty, trees are alternately loved and cursed by golfers and superintendents. Trees complement many landscapes and provide a host of practical and environmental benefits. However, it has long been known that trees on golf courses can wreak havoc with turfgrass quality and playability. Problems inevitably result when too many, or the wrong varieties, are used or when trees are improperly

located. For many years, planting trees has been a popular pastime, and golf courses across the country have been the target of well-intentioned planting programs. Even though most of our early courses were not designed with trees in mind, they have become an integral part of many golf courses in the United States. There is a popular, though erroneous, belief that courses must have trees to be classified as “good” courses. As a result of this belief, and golfers’ general affinity for trees, many golf courses have become over planted. The truth is, trees are not essential to most courses, and they drive up the cost of golf course maintenance tremendously. For most golf course superintendents, trees and the work they create have become a part of doing business, and few realize just how expensive trees can be. The purpose of this article is not to convince courses to remove all of their trees; rather, it is to inform them of what some of the real costs are.

Planting a young tree may cost just a few hundred dollars, but trees as a whole cost many courses thousands of dollars in maintenance costs annually.

In writing this article, eleven 18-hole courses, one 27-hole course, and two 36-hole courses in the Northeast and Mid-Atlantic Regions were surveyed. All were private courses, but maintenance budgets varied widely. Some of the courses could be classified as heavily treed, with others having moderate tree plantings. For the purpose of this article, all information is provided on a per-18-hole basis.

In researching this article, numerous superintendents in the Northeast participated by sharing budget numbers.

### “TREES” — THE LINE ITEM

Every course surveyed included a line item in their budget entitled “Trees,” and not surprisingly, this line item includes costs directly associated with trees and their maintenance. Expenses were associated mainly with pruning and removal of dead or dying trees, but some also included costs associated with planting and pest control. Most trees in this region require periodic pruning, and many clubs allot money annually to prune a portion of the trees on their courses. There also are numerous tree pests active in the Northeast Region, and some courses treat trees preventively for one or more pests or diseases. A few courses also include costs associated with maintaining a tree nursery. In the 15 courses surveyed, the average amount budgeted for trees was \$28,895; however, most courses also allocate large sums under other categories. Specifically, some courses maintain a separate line item for large-scale tree work associated with course improvement projects. All of the courses perform varying amounts of tree work in-house, which requires significant labor.

### ANNUAL TREE PROJECTS

Tree work is costly, and many courses have become severely over planted to the point that hundreds of thousands of dollars is needed to correct the problem. Some courses allot money annually for tree work under this category. Courses that have become badly over planted frequently allot a range of \$10,000 to \$250,000 annually for several years to address major tree problems. The courses surveyed for this article also do some in-house tree work, and this



amount was estimated and included in this category. Thus, the courses surveyed spend a range of \$8,962 to \$50,000 annually for a combination of “annual tree projects” and in-house tree work. The average per-course cost wound up being \$13,377, and this brings the total of what courses budget for tree work in different categories, combined with in-house tree work, to \$34,272 per course.

### STORM DAMAGE

Given the regular occurrence of storms that cause tree damage, some courses include a special line item for storm damage. Others may account for it in their tree budget. Regardless, these first three categories — trees, annual tree projects, and storm damage — represent a reasonable estimate of what most courses are budgeting and spending directly on the maintenance of their trees. The courses surveyed only

According to some experts, the presence of trees does not necessarily add to insurance costs, but obviously unsafe trees in high-traffic areas do increase liability issues.



At times, tree roots can completely engulf and damage a drain line.

averaged \$28,895 in their annual tree budget, but when all three categories are combined, they spend an average of \$34,272 annually on their trees.

### DEBRIS REMOVAL

Leaf removal in the fall at courses with deciduous trees can run into thousands of dollars and is an obvious expense that is relatively easy to calculate. However, debris removal following wind storms must be considered, and some trees drop leaves, needles, and/or fruit at other times of the year, and this also may require significant labor to clean up. In fact, turf areas frequently need to be cleared of debris before they can be mowed, and this adds tremendously to the requirements. The courses surveyed spend a

Trees and tree work are expensive, require specialized equipment, and are potentially dangerous. All this translates to expense.



range of \$9,500 to \$55,000 on labor for debris removal, with an average of \$31,815 annually. Keep in mind that this does not include any equipment or fuel costs, and given the hundreds of hours spent annually on debris removal, these costs are actually much higher.

### MOWING COSTS

Given the vast numbers of trees on some courses and the trimming that is required, it is easy to see that mowing costs would be affected. Clearly, this is a number that will vary widely from course to course because of topography, trees, etc. Expenses also are affected by the type of equipment used to trim around trees. Some courses use non-selective herbicides to save money, whereas others do the bulk of their trimming with string trimmers. Other courses use a combination of walk-behind and out-front rotary mowers. Not surprisingly, courses spend a significant amount of labor trimming around trees, and there also are added equipment costs to account for. Equipment issues will be discussed later, but the *cost of labor alone for trimming around their trees* ranges from \$1,668 to \$20,000 annually, with an average of \$9,769 for the courses surveyed.

### BUNKER MAINTENANCE

Leaves, needles, branches, fruit, etc. from trees eventually find their way into bunkers, and their removal inflates bunker maintenance numbers in a couple of ways. Physically removing the debris, often during bunker raking operations, increases the amount of labor required for bunker maintenance. Depending on the extent of the debris, it may contribute to the deterioration of bunker sand. Bunkers also suffer from tree root incursion, which can adversely affect playability. Tree root incursion can make raking bunkers very difficult, and tree roots may clog bunker drain lines. Also consider that tree root competition may contribute to the decline of turfgrass on the bunker banks. For the purpose of this survey, we have only included the costs of removing tree debris from bunkers prior to raking, and these numbers ranged from as little as \$300 per year to \$9,765 per year, with an average of \$3,626 annually.

### IMPACTS ON TURFGRASS QUALITY

Poor grass-growing environments are a leading cause of turf problems at golf courses throughout the country. Tree canopies block air circulation

and sunlight that are vital for turf health, growth, and recovery, and tree root systems compete very effectively for moisture and nutrients. Tree plantings can drive up the cost of turf maintenance in many different ways. Weak turf must be monitored more closely, and it may require more fertilizer and chemical inputs. Even with many additional inputs, turf that is located in poor growing environments simply does not perform as well as turf that is grown in better environments. Although it is impossible to put a price on golfer dissatisfaction associated with poor turf performance, it has cost many turf managers their jobs over the years.

Thus, in an effort to improve the health, playing qualities, and the reliability of their turf, many courses have removed trees. The improvement in turf quality as a direct result of increased sunlight penetration and air circulation can be dramatic. Other courses have chosen to install electric fans around important turf areas to artificially improve air circulation. Though trees are not always the reason courses need to install fans, they usually play a major role.

Depending on the species, tree root systems can extend out many feet into fine turf areas, where they compete very effectively with the turf for water and nutrients. Tree root competition can have a major detrimental effect on turf quality; consequently, many courses prune tree roots on a regular schedule. Unfortunately, it is not possible to accurately gauge how much additional irrigation is required because of tree roots. Similarly, fertility needs of turf areas clearly are affected by tree plantings, but this also is difficult to gauge. Nonetheless, with the increased cost of fertilizer and the extent of the affected areas, greater fertility costs due to tree root competition would be significant at many courses. Just consider how much labor and how many ropes, stakes, and signs are needed to manage traffic flow at some courses, all as a result of trees.

Because of the complexity of doing so, we have not tried to quantify the extra maintenance costs or golfer dissatisfaction, but these costs can be significant. We have included costs associated with root pruning and electric fans, and these range from \$1,000 to \$5,000, with an average of \$2,823.

## EQUIPMENT COSTS

Tree plantings can inflate equipment costs in many different ways. Courses with extensive tree plantings require more string trimmers and rotary mowers for trimming. Since many trees have surface roots that can be damaging to maintenance equipment, it is reasonable to assume that trees can shorten equipment life and inflate repair costs. It is very difficult to quantify, but mowing around trees results in a tremendous amount of added wear and tear on mowing equipment. No course surveyed budgets



specifically for it, but given the cost of rotary rough mowing equipment, it is certainly worth considering.

Increased equipment inventory, particularly of expensive and specialized equipment, also is worth considering. Depending on tree populations, courses may require numerous blowers, leaf vacuums, and tractors to handle leaf removal. Courses usually need several chainsaws and also may have more expensive and specialized tree equipment such as chippers, stump grinders, lift trucks, etc.

For the purpose of this survey, we are only including nominal funds for shortened life of mowers and annual replacement of string trimmers. These costs ranged from \$200 to \$18,090, with an average of \$5,712.

Tree roots effectively compete with turfgrass for moisture and nutrients, but they also can be very damaging to golfers, golf carts, and golf course maintenance equipment. Severe surface roots can significantly damage mowing equipment and shorten its useful lifespan, thereby increasing equipment costs.

## CONCLUSION

So what are the grand totals and what is the point of this exercise? Believe it or not, most courses are actually spending more than double the amount on their trees as compared to what they are budgeting for tree maintenance. In this survey, we found that the more realistic amounts courses spend on trees range from \$30,130 to \$192,945, with an average annual cost of \$88,016. However, even with this inflated number, there still are many significant and uncounted costs.

By their sheer quantity, trees can add significantly to the time it takes to trim around their bases, thus increasing labor costs.

Many golfers like trees, and trees may be an important asset to some courses. Furthermore, golf courses make great homes for trees, as many of the maintenance practices aimed at improving

turfgrass health also improve tree health. However, trees are expensive and affect many different areas of turf and golf course maintenance. Given the potential costs, golf courses would be well served to think carefully before planting new trees because of their long-term impact on maintenance costs. More to the point, courses with extensive tree plantings and/or large numbers of poor-quality trees could reduce maintenance costs by reducing the number of trees.

DAVID OATIS *joined the USGA Green Section in 1988 as an agronomist in the Mid-Atlantic Region and has been director of the Northeast Region since 1990.*

