How Trees Impact USGA Course Rating™ and Slope Rating®

Tree removals for agronomic purposes are very unlikely to have a significant impact on course rating and slope rating.

BY ADAM MOELLER

Trees creating shade, limiting air movement, and/or causing tree-root competition on putting greens are a serious agronomic concern. These trees have very little impact on Course Rating and Slope Rating because they are 30 yards or more from the centerline of the hole.

Trees are common features on golf courses that add aesthetic beauty and challenge for players. Unfortunately, trees can make it very difficult to maintain a healthy, uniform stand of turf. Trees create shade, restrict air movement and compete with turf for water and nutrients in the soil. All of this can result in poor turf performance and undesirable course conditions when trees are located too close to playing areas. When investigating the underlying problems associated with poor turf performance, start by examining trees and their impact on growing environments. When turf suffers and playing conditions are compromised because of trees, golf facilities are wise to routinely remove problematic trees, especially those near the most important playing areas.

Tree removal is often met with resistance from golfers despite the negative impact trees have on turf. Golfers are

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When calculating USGA Course Rating, trees adjacent to landing zones and putting greens have the most impact on obstacle value compared with trees in peripheral areas. The same is true for trees that define the dogleg of a hole.

often concerned with how removing trees might impact the difficulty of a particular hole or the course in general. The phrase "we cannot remove that tree because the hole will become too easy" has been muttered often. This sentiment is highly subjective from a golfer standpoint, but understanding the USGA Course Rating System™ can provide some valuable insight for this concern.

USGA COURSE RATING AND SLOPE RATING

The USGA Course Rating System is used to predict the difficulty of a golf course for a scratch golfer under normal course and weather conditions. A Slope Rating® is the USGA mark that indicates the measurement of the relative playing difficulty of a course for players who are not scratch golfers compared to the Course Rating. The USGA Course Rating System is the standard by which the USGA Handicap System™ is established, and it determines adjustments in a player's handicap for a particular course. For instance, the USGA Course Handicap™ Calculator determines that a golfer with a Handicap Index of 9.6 playing a course with a Slope Rating of 140 will have a Course Handicap of 12, which is the number of strokes received in relation to other players on that set of tees.

Course yardage is the primary determinant of a Course Rating, with adjustments for effective playing length factors such as roll, prevailing wind, and altitude above sea level. There are also 10 obstacle factors taken into consideration, such as water hazards, trees, out of bounds, rough difficulty, putting difficulty, etc. Each obstacle is assigned a value of 0 to 10, depending on the difficulty it presents to a scratch or bogey golfer on a given hole. When the evaluation is complete, the obstacles are totaled and multiplied by a relative weighting factor. The weighted obstacle values are applied to scratch and bogey formulas and then converted to strokes. Those strokes are added to or subtracted from the Yardage Rating to produce a Bogey Rating™ and a Course Rating. The difference between those two values multiplied by a constant factor is the Slope Rating.

From a Course Rating perspective, tree obstacle ratings are twofold. First, the distance trees are located from the middle of the landing zone or putting green is evaluated. Second, the recovery potential from those trees is determined to be minor, moderate, significant, or extreme. Other adjustments for unusual situations such as chutes or obstructing trees are determined as necessary. Trees that obstruct the landing zone or putting green and those that define doglegs receive a higher obstacle value than trees located on the periphery of the hole, which come into play less often and usually offer good recoverability. However, trees with limbs extending to the ground (e.g., unpruned spruce trees) do not offer much recovery and receive a higher obstacle value.

Trees located 30 yards or more from the centerline of the hole often have very little impact on the obstacle value. This is especially true around and behind putting greens. It is important to note that the most detrimental trees on

The tree fronting the left side of this putting green will impact the obstacle value on this hole, but it is unlikely that the Course Rating and Slope Rating will change dramatically if it is removed.

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golf courses are frequently located around and/or behind putting greens. Also, keep in mind that two to three significant trees adjacent to the landing zone could produce the same obstacle value as a fairway lined with many trees. Obstacles in the landing zone are focused on more heavily than obstacles in peripheral parts of the hole, because they are more likely to come into play. The obstacle value for trees is also increased as the length of the shot to reach the landing zone or putting green is increased due to wider shot dispersion on longer shots.

A CASE STUDY

To illustrate how trees may impact the Course Rating and Slope Rating, a simulation from a golf course with minimal trees is provided. The actual Course Rating and Slope Rating are 73.8 and 128, respectively. When a moderate obstacle value for trees is added to all 18 holes, the Course Rating and Slope Rating rise to 74.4 and 139, respectively. When a high obstacle value for trees is added for all 18 holes, the Course Rating and Slope Rating rise to 75.0 and 147, respectively.

The Course Rating and Slope Rating increase as the obstacle value for trees increases, but this simulation accounts for more trees across *all* 18 holes on the course. In the event that a few trees are removed or added to a single hole, it is highly unlikely that the Course Rating or Slope Rating will change at all. This is particularly true when trees are 30 or more yards from the centerline of the hole.

CONCLUSION

Several championship venues have undergone major tree removal programs — some removing more than 75 percent of their trees — to restore the original architectural intent of the golf course. The Course Rating and Slope Rating were largely unaffected at these facilities, and the same would likely be true at your course. On golf courses with tree-lined fairways, it is very likely that 50 percent of the trees on the periphery of a given hole, or even the entire golf course, could be removed without significant change to the Course Rating or Slope Rating. Remember, Course Rating and Slope Rating are derived from the expected score from the scratch and bogey golfer. Scratch golfers will rarely hit the ball far enough offline to have serious challenges with trees, and these players often recover well after wayward shots. Bogey golfers may find themselves with tree troubles two to three times over 18 holes on some rounds, which could impact one to two strokes of their score, while on other rounds they may have no tree trouble at all. When averaging the impact of trees over 10 rounds, it becomes clear that trees have a very small impact on Course Rating. Slope Rating and a player's Handicap Index are unlikely to be affected, in most cases, if trees are added or removed from a few holes.

When trees need to be removed to improve sunlight penetration, air movement, and/or eliminate tree-root competition, golfers should not fear that the Course Rating and Slope Rating will dramatically change. However, the challenge of a particular hole may change if a key tree is removed for agronomic purposes. In this instance, work with your USGA agronomist and golf course architect to develop the most reasonable solution to provide healthy turf and desirable golfer challenge. Also, keep in mind that when shade, limited air movement, and tree-root competition are reduced, other variables impacting Course Rating and Slope Rating are likely to be affected. For instance, with fewer trees around a landing zone or putting green, sparse rough can transform into a healthy, dense stand that becomes more difficult. Likewise, healthier putting greens due to increased sun and/or air movement may be maintained to create more difficult playing conditions, such as drier, firmer putting surfaces, which would impact Course Rating and Slope Rating.

The argument that tree removal will negatively impact Course Rating and Slope Rating should not be used when evaluating long-term agronomic decisions. Good golf conditions require healthy turf, and that sometimes requires removing trees.

The obstacle value for trees increases with the length of shot required to reach the landing zone.

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