TREE PLACEMENT *on the golf course*

Trees can help define fairways, provide shade relief, serve as targets or serve as barriers to noise or unsightly views. Careful placement is important.

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If you ask a group of golfers what they enjoy about the sport, some may mention friendly competition, while others claim exercise, the opportunity to entertain business clients and the challenge of hitting a small white ball into a hole some 400 yards away. The one attribute that golfers mention often is the enjoyment they receive from spending half a day surrounded by lots of green grass and beautiful trees.

The green space that a golf course offers to golfers and the community as a whole is made possible in part by the strategic incorporation of trees. Several University research studies have shown that just being around a healthy landscape is refreshing and provides healing to a frazzled or frustrated person. *(We may be able to assume that the effect is similar on a golf course* ***if*** *a player's game is* ***on*** *that day).*

Why trees?

Beyond aesthetics and a sense of maturity and permanence that trees can give, trees serve several practical functions on the golf course. Well-designed tree use and placement can improve the quality of play. First and foremost, trees serve to define the sides of the fairway. Any landscape space needs enclosure at some level, and the golf course is no exception. Depending on the level of maintenance of the course, the rough can be at various levels, normally 2-6 inches. The lower the height of cut of the rough, the more trees and shrubs are needed to mark the fairway, providing a target for the golfer.

Tree placement that helps define the fairway may have several approaches. The 'layered' or 'tiered' look can be effective, with small to medium-sized shrubs located in the first cut of rough, larger shrubs behind those, with trees of various sizes as a background to the shrubs. Alternatively, masses of small tree intermingled with larger ones can be planted in the deep rough to provide a sharp

mass/void feature. This can be quite powerful, creating interest and functional appeal to the golfer.

In addition to fairway definition, trees can serve to screen objectionable views from adjacent properties. Screening can also be used to reduce noise from other golfers between greens and the subsequent tee box. Screening can also be quite a safety enhancement as well as aesthetic, as plantings between fairways reduce the likelihood of errant golf shots from adjacent holes striking unsuspecting golfers.

Trees can serve to provide a background or backdrop for the green. As a golfer is lining up an approach shot from 150 yards out, trees provide perspective and a contrasting background to the putting surface. The difference in color and texture provides the necessary difference in appearance to aid the golfer in estimating distance and club selection. Small trees and large shrubs can be effectively used for yardage markers. They are generally placed in the first cut of rough to communicate distance to the center of the green.

Trees can also add to the challenge of play (occasionally perhaps not the intention of the design) such as anchoring a dogleg, narrowing a fairway or closing down the approach to a green where a slice or a hook can lead a player astray.

Additionally, a tree canopy over the bench by the cart path can be an accommodating feature of the course on those hot, sunny days. The judicious placement of shade trees in the tee box area provides a welcome respite from the elements in July or August.

Weather can have a negative influence on the golf course as well as the golfer. In winter, cold, drying gusts can dry out the crowns of the turf plants, especially on elevated tees and greens. Evergreen trees placed adjacent to these vulnerable areas can provide protection from drying winds. In some cases, a windbreak effect can be achieved, with reduced wind velocity created on the side opposite the prevailing winds for a distance equaling 3-5 times the height of the trees. The placement of trees on the course also affects the accumulation of snow as well.

Asset or eyesore?

Obviously, trees provide many benefits to the golf course. However, poorly placed or poorly selected specimens can create problems on the course, rather than enhancements. While reduced wind speed may be desirable in the winter, it can be problematic during the growing season. If the foliage is too dense, poor air circulation results. Many turf pathogens are favored by moist, stagnant air including pythium, powdery mildew and dollar spot. If turf diseases are encountered repeatedly, consider thinning the foliage by selective branch removal or removing certain trees altogether.

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Tree litter is another problem that can be created by poor placement or selection. Some trees, such as Spring Snow Crabapple (*Malus* x "Spring Snow") produce only small amounts of tree debris, whereas others, such as Hopa Crabapple (*Malus* x 'Hopa'), drop large fruits and are susceptible to apple scab, which can result in many of the leaves dropping by mid-summer in a humid year. Other trees such as ash and willow have brittle wood and drop twigs, while honeylocust can drop seed pods, all of which can interfere with maintenance and play. If a tree is observed to be in a state where it causes more negatives for the golf course than positives, remove it or transplant it to another location where it will have fewer negative consequences.

All trees require maintenance, some more than

Tree details to consider

When planting or retaining trees on a golf course there are a few aspects to consider. Suitable tree species characteristics should be considered when locating trees:

▶ The likelihood of a tree being hit by a ball. Any thin-barked trees, such as birch, cherry, beech or mountain ash, are not suitable choices in locations where they can be repeatedly struck by golf balls. Though thick-barked trees may be more resilient, even they will be affected by repeated hits. Any trees in such locations should be considered as candidates for fertilization to help the trees withstand the additional stresses.

▶ The flowers, fruits, twigs and leaves. Trees which have flowers or fruits which may affect play or require cleanup should not be situated near greens or bunkers. Trees which have brittle twigs or heavy leaf fall should also be avoided in these locations. The cleanup and potential for disruption of play should be minimized. These types of trees are better situated in areas where they will not have such a significant effect on play or increase maintenance, such as along fairways, for screening, etc.

▶ Diseases and pests in your area. Some disease and pest problems affect the health and appearance of the trees. Anthracnoses of sycamores and dogwoods, apple scab on many crabapple varieties, Japanese beetle on *Prunus spp.*, or the many pests of honeylocusts are only a few possibilities. Being aware of the common problems in your area can help you select trees which will not be more of a liability than an asset.

▶ Growth habit and spread. When planting trees it can be difficult to envision the impact of the tree when mature. A spreading tree near a tee or green may be attractive but a number of them, or trees planted too closely, can shade the turf or impinge on play, requiring pruning which reduces their aesthetic appeal. Consider the mature size and spread of the tree and the desired impact when planting; a number of smaller or narrow-crowned trees, or only one or two wide spreading individuals may be more appropriate.

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▶ Maintenance requirements. Selecting trees which have lower maintenance needs includes trees with few pest problems and trees with strong wood. Branching habits are also important as some species have narrow branching patterns and/or very heavy dense crowns. Not only does a dense crown shade turf but it may also be more prone to breakage due to the poor branching habits. Breakage affects both the appearance of the tree as well at the structural stability (and safety) of the tree.

▶ How the tree affects turf and play. While all trees will have some impact on turf, select trees which are less prone to causing additional problems. Shallow rooted trees, such as Norway maple and littleleaf linden, should be avoided in most locations, particularly anywhere a ball in play could be affected. Trees which have suckers or root sprouts (such as some of the poplars) can also cause problems.

▶ Visual impact. Unusual species or dramatic specimens can be an asset to a golf course. However, planting too many of them together or around the course can dilute their impact. Using too broad a variety of distinctive or unusual trees can also reduce the impact of the trees. Consider the setting, the impact of the trees when mature and when you think you want to add 'just one more', don't.

▶ Protect and plan for the future. The loss of a mature tree can have a serious impact on a hole, whether affecting play or aesthetics. Protecting valuable and historic trees should be considered to reduce potential of breakage of large limbs or damage by lightning. Trees by water, trees standing alone and a larger tree within a group of smaller trees are potential lightning targets and installation of lightning protection should be considered. Large spreading trees or trees with co-dominant or multiple trunks are only two situations where cabling and bracing should also be considered. Not only is the tree health affected but possibly the structural stability of the tree as well. □

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others. When a tree's condition deteriorates, increasing the level of care required, the superintendent needs to re-evaluate its contribution to the course. Depending on the importance of a particular tree, increased treatments or pruning may be justified. On the other hand, the function of the tree may not be critical, or it may be more cost effective to remove the tree and replace it.

Historic or memorial trees can be problematic, due to family or "friends of the course" who have a vested interest in retaining the tree, as well as a desire to enjoy playing the course as intended. When a memorial tree begins to fail, a special problem is created, because what is required for the health and vigor of the tree or for the playability of the course may not get done, for fear of upsetting club members. Superintendents may want to consider bringing these concerns forward to the Greens Committee to establish a standard operating policy concerning tree health and justification for judicious pruning, pest control and removal.

A good open line of communication is helpful for tree maintenance, just as it is in greens maintenance.

Trees can be an asset or an eyesore. The challenge for the superintendent is to routinely monitor trees for pests, consider the relationship of the canopy, bark, roots, fruits, and silhouette of the tree with that of the turf, and evaluate the proper balance of trees and turf on the golf course. A consulting arborist or horticulturist can provide valuable insights and perspective, and should be utilized periodically to keep the golf course a valuable part of the recreational green space. □

Conflict resolution

Trees and the turf compete on several fronts. Turf roots, due to their sheer density, have the advantage for nutrient uptake. But trees get more of the sunlight.

This has been the cause of many headaches for golf course superintendents. Shade can create poor turf conditions, but tree removal can be a source of disagreement and conflict with club members.

Wholesale tree removal is not always required to increase light on an over-shaded tee or green; the removal of selected branches may be sufficient to increase the light in a particular area. But making that decision with any degree of success can be difficult.

One method that can assist in this process is a system which uses sun location as a basis for determining appropriate pruning or removal. The SunSeeker system identifies the position of the sun at any time of the year for any geographic location. Using calculations which take into account the latitude and longitude of the golf course, the spin of the earth, and the angle and rotation of the earth around the sun, the computer program is able to calculate the position of the sun throughout the day.

A superintendent can identify when a shaded area requires more sun and the programmed transit can use those times to determine where the sun will be. Based on this information, the actual locations where the pruning or removals will have maximum effect can be identified. Not only does this system minimize tree removals while increasing sun exposure but it also simplifies the decision process and justifies tree pruning and removal to a concerned membership or Greens Committee.

The benefits of the SunSeeker include: improvement of turf conditions, minimal loss of healthy trees, minimal disruption during peak golf season, simplification of tree management decisions and increased accuracy for pruning and removal decisions.

ArborCom Technologies, the company which markets this product, also provides training and consulting services. ArborCom can be reached at 888-786-5628 or at http://arborcom.on.ca for more information on their products and services. □

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