Tees and the Golf Course

By **Alexander M. Radko**, Eastern Director, and **Holman M. Griffin** and **Lee Record**, Northeastern Agronomists, USGA Green Section

The Rules of Golf define the teeing ground as "a rectangle two club-lengths in depth, the front and sides of which are defined by the outside limits of two markers."

In the early days of golf, an area so defined could well have served as adequate teeing area on any hole for the greater part of the golfing season. Tees then were relatively small, usually were elevated, had steeply sloped sides, and were almost square in design. In the ensuing years, emphasis was placed on larger tees to accommodate the increase in play. With the increase in size, tees were constructed with gentle slopes so that the sides and even the surfaces if necessary could be maintained with larger units rather than by hand.

While there is no set rule for the size of tees, they should be large enough to accommodate the frequent change of markers and to avoid unnecessary turf wear in any one area. A good rule of thumb for tee size is a minimum of 100 square feet of useable tee space per 1,000 rounds of golf per year on par 4 or par 5 holes, and a minimum of 200 square feet per 1,000 rounds of golf per year on par 3 holes subjected to iron play from the tee. For tees on par 3 holes played with a wood, the same rule of thumb applies as is suggested for tees on par 4 and par 5 holes.

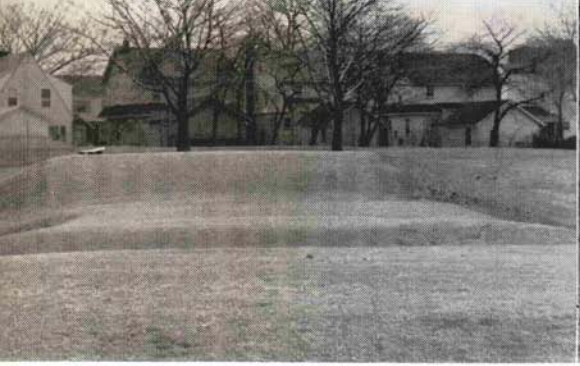
Shapes

Tees may be built to any conceivable shape but the design should be such that it fits well with the existing terrain and is easy to maintain. Multi-level, tiered, or abruptly elevated tees seem to have lost favor in popular and practical design which has been influenced greatly by today's heavier use of the course. There appears to be much room for improvement in the general design of tees. Many of the newer tees are long, narrow, and rectangular in shape, in fact some are so long they are sometimes affectionately referred to as "The Landing Strip." Unfortunately, the average player seldom likes to tee off except from the front third of the long tees, and such tees require maximum maintenance for minimum usage.

Tiered or multi-level tees also are dwindling in popularity because much valuable teeing area is lost in-between tiers. Some of the more interesting shaped tees are circular, semi-circular, "L" shaped, "T" shaped, or "U" shaped. While there is no limitation on shape or design, tees should not restrict the flow of traffic nor create areas of concentrated wear. They should be designed so that all parts of the tee may be used equally well and that traffic will be as widely and uniformly dispersed as possible.

Location

The location of a tee with respect to the flow of traffic and its relation to surrounding objects is important. No tee should be placed in the direct line of traffic from one facility to another, and the flow of traffic should be around rather than across the tee. Foot and car paths with plants of one sort or another subtly interspersed and strategically located to guide traffic is often helpful. This is especially critical in and around the clubhouse where ugly and untidy paths can develop which detract from the overall beauty of the club grounds.



If tee is small and in a confined area, it usually is necessary to make it one level. No. 18 at Forest Hill Field Club, Bloomfield, N. J., is adequate in size as a multi-level tee.

The slope of the same tee which must be maintained by hand. It is too steep to mow with large units.

In the case of small tees, tees under repair, or very heavy play in winter and/or summer, alternate teeing areas may be required. Alternate teeing grounds, during periods of adversity, can distribute wear over a wider area, thus reducing wear and tear on the regular tee.

Tees ordinarily should be located in areas not confined by trees nor shaded from direct sunlight for any period of time. Trees should not be planted so close that they will compete with grasses for water and soil nutrients. Hedge rows and other ornamental plants normally are not desirable around tees for the reasons stated, and also because usable teeing area is considerably reduced. Hedge-like plantings do have value when used near the tee as a screen to block out traffic noises, untidy buildings, or the view of unwelcome spectators.

Womens' tees are now receiving more attention, and rightly so because of the increased use of the course by ladies. All of the considerations which go into the construction of the men's tees should also be employed for the ladies' tees to make a really adequate course. One exception might be in tee size. Because of the difference in ferocity with which men "attack" the game, ladies could get by with smaller tees, possibly one-half the size suggested for the men. Certainly, the "postage stamp" tees of the past are no longer adequate to accommodate the amount of ladies' play at most courses.

Construction

Next to greens, tees and aprons are the most intensively maintained areas on a golf course. The trend today is directed toward tee maintenance and management programs similar to that of greens. There is a growing tendency to mow tees with putting green mowers, to remove grass clippings, to cut close and frequently, to apply quantities of fertilizers and disease control materials that are applied to greens and generally to groom tees as neatly as greens. To pursue the intensive maintenance required demands that most of the major considerations afforded greens in construction are also built into tees.

The tee topsoil should be a prepared mixture of sand, soil, and organic matter in a ratio which insures a friable soil with good internal percolation and drainage. The prepared soil should be placed on the site at a settled minimum depth of four inches, and preferably should be sterilized before seeding to insure freedom of weeds. Lime and fertilizers should best be applied at this time and mixed into the four-inch topsoil surface. The need for limestone should be determined by soil test while nitrogen,

phosphorus, and potassium are supplied in amounts normally required for turfgrass establishment. All nutrient elements should be thoroughly and carefully incorporated into the topsoil. The topsoil must be allowed to settle or it must be firmed well by other means prior to planting the grass. If there is not adequate time to allow for natural settling, then it is necessary to rake and roll several times over, also to do some "footing." This is accomplished when workers walk over every square inch of the new soil, assuring against uneven settling of the tee as the turf develops.

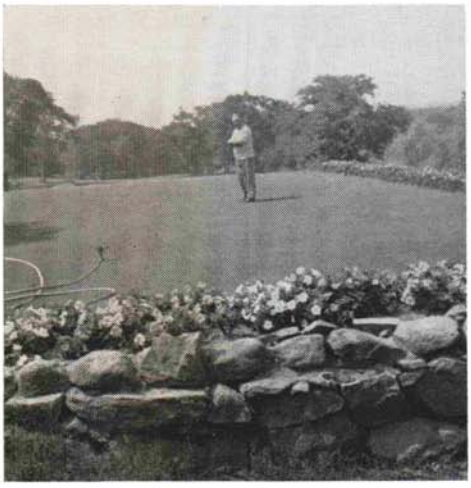
Tee soils should not hold water excessively or they will suffer during periods of traffic or weather stress. As with greens, good internal and surface drainage is required and should be provided for during construction. Good surface drainage requires that pond-like depressions be averted and that water drains away from the tee quickly in broad shallow sheets rather than in narrow run-off channels. Normally, a very slight descending pitch from front to rear is desirable. The pitch must allow for quick surface drainage and yet be subtle enough to that the player will feel that he has a level stance. A slope of one to 1.5 percent will prevent surface water from ponding. If tees are multi-level, it is extremely important that the rear-most portion of each level be pitched slightly to right or left so that surface water does not collect between levels. Ponded water not only detracts from the beauty of a tee, but it makes the tee uncomfortable underfoot and will injure the turf if the water remains there for any length of time.

Good internal drainage is necessary to allow water into and through the soil so that roots receive the proper amounts of moisture. Soil types greatly influence internal drainage and if the soil is not porous, then tile drainage lines may be required. Four-inch tile lines would be installed in the same manner as for a golf green with the outlet placed in some out-of-play area away from the normal traffic pattern.

Irrigation

Principles of irrigation apply to tees in much the same manner as those for other areas of the course. The quantity of water used, the frequency and the rate of application must all be adjusted to meet the needs of the turf as well as the specialized playing conditions. The major difference in tee irrigation is that it is geared to the minimum requirement so that tees will be kept on the dry side. Tees should be watered at periods which will allow the longest possible time between irrigation and heaviest play. The tee must have a reasonably dry surface to avoid unnecessary turf damage and provide a firm stance for the golfer. With larger tees, perhaps sections of the tee could be irrigated on a schedule so that only drier areas could be utilized to conform with heavy play schedule and the movement of tee

The Ladies' Tee on the 6th hole at Upper Montclair, N. J., Country Club. Ladies tees are receiving more attention and are being made larger due to the increase in play by women.



Supt. Michael O'Grady inspects his No. 3 tee at the Country Club of New Bedford, New Bedford, Mass., a good example of an adequate-sized tee for a par-4 hole. It is principally bentgrass turf maintained at 1/2 inch. The petunia flower bed adds beauty, yet is not confining—as are hedges.

markers. Over weekends and on days when the heaviest play is expected, it is desirable to set the markers on areas conditioned to the dry side.

Most courses today have underground lines leading into tees for irrigation purposes. Quick coupling systems have been most popular to date but the trend toward semi and fully automatic systems in new course construction is on the upgrade. Hoses and movable sprinklers appear to be on the way out because of the labor requirements involved, and the difficulty in completing irrigation in the required pattern without players or caddies moving them or turning them off prematurely.

Choice of Grass

The choice of grass for tees will hinge upon several factors. The turf must allow for a firm stance; it must be tight and dense but still easily penetrated by a wooden or plastic tee; it must be cut close so that the advantage of teeing up to each individual golfer's liking is a real one; it must be tough enough to recover from golf club and traffic injury in reasonable time; it must have spreading or creeping qualities in order to provide a uniform and smooth-looking and smooth-playing turf; it must be attractive, and it must be groomed neatly for golfers to care for it as a valuable asset to their golf course.

There are numerous selections to choose from but those used for tees seem to be narrowing down to the very same selections being used for greens. These are mostly bentgrass selections for northern courses and the fine-leaved bermudagrass for southern courses. In the North, the creeping strains such as C-1 Arlington, C-19 Congressional, C-7 Cohansey, C-15 Toronto, C-52 Old Orchard, Nimisila, and Penncross are widely used. All mentioned, except Penncross, are vegetative strains and are planted by means of stolons. The usual rate of stolonizing varies from four to eight bushels per 1,000 square feet. Penncross is a seed variety and the rate of seeding is generally from one to 1-1/2 pounds per 1,500 square feet.

Other means of establishing turf on tees is by means of sodding or by spreading aeration cores gathered from greens aeration. The latter technique is mostly utilized in nursery establishment but it has been done successfully on new tees also. Sodding is not normal practice in new course construction because of the comparatively high cost of sod and, oftentimes, the local unavailability of the type of sod desired. Sod is used normally to renovate tees when weaknesses develop after years of play. Nursery sod is grown on the course by the superintendent for use in emergencies, for divot repair, to renovate, or to sod tees which the superintendent subsequently alters or constructs himself.

Normally, it is desirable to establish a tee nursery on a prepared soil similar to that used for tees on the course. Using similar soil prevents problems of layering. Layering is detrimental to a soil profile because it restricts or inhibits root, water, and nutrient penetration to a desirable depth.

Other grasses used for tee cover are Merion bluegrass, Kentucky bluegrass, creeping red fescue, Seaside—Astoria—Highland bentgrasses, and *Poa trivialis* on courses where cool-season grasses principally are grown; and bermudagrass and the zoysia grasses where warm-season grasses are encouraged. The rate of seeding of the grasses listed will vary from two to five pounds per 1,000 square feet depending on the choice of mixture.

Maintenance and Management Requirements

The teeing area is the first opportunity for the golfer to closely view the turf cover and to form an impression of the course he is about to play. Above all, the tee area must be attractive and neatly groomed. The tee markers must be squared away with the intended line of flight, the turf must be uniformly cut and the grass cover must be attractive, firm and full. It must be free of trash and litter. To provide such a picture day in and day out during the playing season, many man-hours are required, principally for the following tasks:

Tees are mowed three or more times weekly during the time the grass is actively growing. They are mowed with individual power units, self-propelled triplex type mowers, or tractor-drawn gang units similar to those used on fairways. The direction of mowing is changed from time to time to help provide a smooth, clean cut. Clippings are removed with each mowing at some clubs while at others they are only removed when they accumulate. Tees preferably should be mowed between 5/16 to 1/2 inch if established to bent, zoysia, or bermudagrass and higher if established to other grasses.

Grain, mat, and thatch removal are important to the health and welfare of tee turf. Aeration, thatching, spiking, and vertical mowing are some of the principal mechanical means of cultivation that help insure against a buildup of grain, mat and thatch. These practices also better insure a firmer footing for players. Tees generally are aerated more often than greens, especially when they are small in relation to the amount of traffic they bear. Normally, tees are aerated from two to four times yearly but it is not uncommon to see small tees aerated once a month during the regular golfing season.

A view of No. 17 tee on the upper course at Baltusrol Golf Club, Springfield, N. J., showing tee construction of early vintage.

The No. 17 tee on lower course at Baltusrol provides 6,300 square feet of usable teeing area. Note gently tapered slopes which can be completely maintained by larger mowing units.

Renovation or Repair

There are no set rules for the timing of tee repair and renovation. Normally, it is done when necessary. Larger tees may require only an occasional topdressing and tee repair while small tees may require repair weekly. There is an inverse ratio as regards tee size and the amount of repair normally required on heavily played courses. Divot holes are repaired by means of plugging, seeding, or filling the holes with soil alone or with a soil and seed mixture. In plugging, a tool is used somewhat similar to the one employed for changing cups on greens. There are different types of pluggers, some circular and some oval. They come in sizes varying from two to 10 inches in diameter. If soil and seed are used, they are premixed and the worker simply places a handful into each divot hole and firms it in with his foot. Some clubs pregerminate seed by moistening the soil-seed mixture several days prior to its use on the tee. In cases where creeping grasses make up the tee cover, it is important to fill the divot holes with soil so that smooth and speedy recovery is made. Placing soil in divot holes helps prevent the bruised turf within the divot perimeter from drying out, it provides a good medium for the creeping grasses to re-root faster, and it keeps the surface from becoming excessively bumpy.

The spring and fall are the normal seasons for thorough renovation of weak tees. If the tee requires complete surface renovation and seeding, then aerating, thatching, and spiking machines are used to prepare the seed bed, usually without taking the tee out of play. In renovation prior to seeding, the turf should be aerated several times over, thatched in more than one direction, then dragged and seeded.

Tees also require topdressing in order to keep them true and level. Topdressing once or twice yearly is normally required; however, here again the smaller the tee the more club and traffic injury sustained and the more frequent topdressing required. Grasses that exhibit spreading qualities, such as the creeping bentgrasses and the fine-leaved bermudagrasses, require more frequent topdressing than most others.

Tees generally should be fertilized and limed about on the same schedule as greens. The exact program will depend upon the grass cover chosen. Bentgrass, bermudagrass and Merion bluegrass require more fertilizer over the year than other tee grasses. Bermuda and bentgrass tees also require approximately the same fungicide program administered to greens. However, because tee grasses are

No. 4 hole at Baltusrol Golf Club, Springfield, N. J., a good example of adequate teeing area for iron play on a par-3 hole. Rear tee is for professional and low handicap golfers, front tee for regular play. Front tee measures 10,800 square feet.

mowed higher and there is more leaf surface to protect, higher rates of fungicide are required in spraying. Phenyl mercuric acetate formulations should not be applied to Merion bluegrass tees as Merion is sensitive to this chemical and could be weakened or badly injured by it.

Insecticide treatments also are needed on all tee grasses but again the finer ones such as bentgrass, the hybrid strains of bermudagrass and other dense spreading grasses require extra treatments over the season to combat surface feeders as well as grubs. The finer the turf and the more accelerated the program of fertilizer and water application, the softer and more palatable the grass plant and so the greater the protection needed against insects over the year. Tees and greens are prime targets for instinctwise insects.

A definite program of tee marker movement is a must for any successful tee program. Markers should be moved daily on heavily played courses. They should be moved by someone who appreciates and understands the game of golf. It is important to square each set of markers with the intended line of flight on each hole.

Finally, clean towels, ball washers with fresh soap and water, and adequate trash receptacles are an important part of the overall tee picture. These, together with all else discussed, round out the sum total of the important factors for a complete tee program which make up one important part of the exquisite beauty that is the well-managed, well-maintained golf course.

COMING EVENT

June 8-9 Mississippi Turf Conference
Mississippi State University
State College, Miss.

Shield for Housing Area

How would you cope with the problem of shielding a new housing development that suddenly sprang up adjacent to some hole on your golf course? The solution of the Salem Country Club in Peabody, Mass., was to build a soil abutment along the right side approximately seven feet high.

This blocked out the right and directed tee shots to the left side of the 13th fairway, almost entirely eliminating any stray shots to the development. The housing development is obscured entirely from the tee and so presents little or no mental hazard.

In the photograph, Supt. John

O'Connor is flanked by Green Section Staff Member Holman Griffin, left, and Green Section Committeeman Charles Wenzel, right.