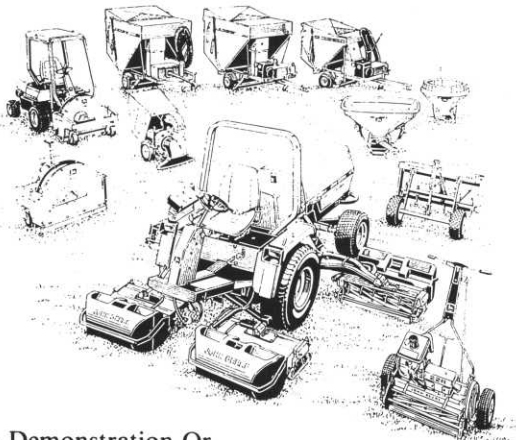


## The Golf Tee

First and foremost, Dr. William Lowell was a gentleman. In 1921, at the age of 60, the dentist from South Orange, New Jersey, took up golf. He was appalled by the practice of teeing the ball on a pyramid of wet sand, leaving a player with gritty hands. Instead, Lowell used his dental tools to whittle a golf tee. Although Dr. Lowell's partners referred to his tees as "suppositories for wildcats," Lowell's sons saw commercial potential in the tee, and in 1924 Lowell received a patent. His Reddy Tee was packed in boxes of 18 that sold for a quarter. Lowell imagined golfers would leave them behind and use a box per round. He even planned a biodegradable version until he realized golfers were hanging on to the little wooden spikes. The tee got a professional boost when Walter Hagen, the U.S. Open Champion, pulled up to Dr. Lowell's dental office and asked where he could get more tees. Advertised as "The Tee of Champions," 70 million Reddy Tees sold worldwide in 1929. By then competition was catching up to Dr. Lowell, and his company office was closed in 1933.

Old Farmer's Almanac, 1988

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## THE EXTENSION LINE

*Bob Mugaas of the University of Minnesota Extension Service is a regular contributor to Hole Notes. As Hennepin County Extension Agent, Mr. Mugaas compiles various articles related to the golf field for our information. Bob is an excellent source for answers to many questions on horticultural problems. He may be reached at 612/542-1420. Written requests should be sent to:*

**Bob Mugaas**  
Minnesota Extension Service-Hennepin County  
701 Decatur Ave. N.  
Suite 105  
Minneapolis, MN 55427

This month's articles cover Types of Pruning- Mature Trees, Oak Problems, and Powdery Mildew.

## TYPES OF PRUNING-- MATURE TREES

From Nursery Notes, August 1989

by **Elton M. Smith**

Extension Specialist - Landscape Horticulture  
Ohio Cooperative Extension Service

### A. CROWN CLEANING

Crown cleaning or cleaning out is the removal of dead, dying, diseased, crowded, weakly attached, or low-vigor branches and watersprouts from a tree crown.

### B. CROWN THINNING

Crown thinning includes crown cleaning and the selective removal of branches to increase light penetration and air movement into the crown. Increased light and air stimulates and maintains interior foliage, which in turn improves branch taper and strength. Thinning reduces the wind-sail effect of the crown and the weight of heavy limbs. Thinning the crown can emphasize the structural beauty of trunk and branches as well as improve the growth of plants beneath the tree by increasing light penetration. When thinning the crown of mature trees, seldom should more than one-third of the live foliage be removed.

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At least one-half of the foliage should be on branches that arise in the lower two-thirds of the trees. Likewise, when thinning laterals from a limb, an effort should be made to retain inner lateral branches and leave the same distribution of foliage along the branch. Trees and branches so pruned will have stress more evenly distributed throughout the tree or along a branch.

An effort known as "lion's-tailing" results from pruning out the inside lateral branches. Lion's tailing, by removing all the inner foliage, displaces the weight to the ends of the branches and may result in sunburned branches, watersprouts, weakened branch structure and limb breakage.

#### C. CROWN REDUCTION

Crown reduction is used to reduce the height and/or spread of a tree. Thinning cuts are most effective in maintaining the structural integrity and natural form of a tree and in delaying the time when it will need to be pruned again. The lateral to which a branch or trunk is cut should be at least one-half the diameter of the cut being made.

#### D. CROWN RESTORATION

Crown restoration can improve the structure and appearance of trees that have been topped or severely pruned using heading cuts. One to three sprouts on main branch stubs should be selected to reform a more natural appearing crown. Selected vigorous sprouts may need to be thinned to a lateral, or even headed, to control length growth in order to ensure adequate attachment for the size of the sprout. Restoration may require several prunings over a number of years.

#### E. CROWN RAISING

Crown raising removes the lower branches of a tree in order to provide clearance for buildings, vehicles, pedestrians, and vistas. It is important that a tree have at least one-half of its foliage on branches that originate in the lower two-thirds of its crown to ensure a well-formed, tapered structure and to uniformly distribute stress within a tree.

When pruning for view, it is preferable to develop "windows" through the foliage of the tree, rather than to severely raise or reduce the crown.

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## OAK PROBLEMS

From **Dial-U Highlights**  
**Minnesota Extension Service**  
**University of Minnesota**

Several calls have come in concerning browning and defoliation of entire or significant portions of oak trees. The major concern is whether or not the trees have oak wilt. Oak wilt symptoms on red oaks include rapid wilting of the affected trees beginning at the top of the tree. The leaves wilt from the tips to the base and fallen leaves are likely to be brown around the tip and green at the base. On cross-sections of affected branches, brown discoloration of the springwood vessels and brown streaking on the outside of the wood may also be observed. White oaks may survive for several years with uniformly brown leaves appearing during the growing season and affected branches eventually dying back one or two at a time.

A similar pattern of symptoms may occur on drought stressed oaks infected with Armillaria root rot and colonized by two-lined chestnut borer. Oak trees that are killed by this condition decline over a several week period. Signs of Armillaria infection include development of white mycelial fans and black, shoe string-like rhizomorphs under the bark at the base of the trunk. Honey-colored mushrooms often develop in close proximity to the tree. If colonization of the borer has occurred, its galleries can also be seen under the bark of large branches and main trunk.

Two-lined chestnut borer (T-LCB) damage is apparent in red, white, and bur oaks, and also ironwood trees. They first attack the crown; dieback can resemble oak wilt. One way to differentiate between the two is to check dead branches for meandering tunnels; this indicates attack by T-LCB. Unhealthy trees are most likely to be attacked and can be killed by this insect. Prune infested branches two feet into healthy tissue to remove the borer. Remove trees that have been killed by T-LCB. Watering and fertilizing can help increase the vigor of the tree and help it to tolerate this insect.

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## POWDERY MILDEW CAN WREAK HAVOC

by **Cynthia Ash**  
**Asst. Extension Specialist**  
**Minnesota Extension Service**  
**University of Minnesota**

The ever present powdery mildew fungi have been wreaking havoc in many gardens and landscapes this summer producing gray to white powdery appearing structures of

the leaves. Severe infections can result in leaf puckering, poor growth, and fewer flowers.

Unlike other fungal diseases which need prolonged periods of wet foliage to infect the plant and cause disease, the mildew fungi only need occasional periods of high humidity. When this happens the fungus grows over the surface of the leaf and sinks little structures into the leaf to derive nourishment. Powdery mildew seldom seriously harms the numerous types of plants it infects but it can reduce photosynthesis and weaken the plant.

To prevent problems with powdery mildew avoid planting susceptible plants in heavily landscaped areas. In existing landscapes pruning or replacement of plant materials to increase air circulation and sunlight penetration will help. Avoid over-crowding. Use plant materials adapted to the landscape areas present. Water early in the day and at the base of the plant. Fungicides are available for some plants but are only a temporary cure.

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## ILLUSTRATED POSTER ON TWO TEE SYSTEM FOR WOMEN OFFERED

Recognizing the tremendous influx of women into the golfing ranks, the American Society of Golf Course Architects is offering an illustrated poster that explains the design philosophy behind the two tee system for women.

Alice Dye, the only woman member of the Society and an amateur golf champion, has authored the material on the two tee system. She explains the current research, why the system is gaining momentum, how to create new forward tees, and the cost of construction.

Illustrations show exactly how the two tee system should be implemented, both on existing courses and new courses. "Men have a choice of playing from different teeing grounds to accommodate their various abilities," Dye points out. "Women have no choice. It's like asking them all to wear the same dress size. Golf course personnel who recognize the fact that women make up a main source of weekday golf need to assess their yardages to create a manageable course for women golfers.

Addition of new forward tees to the existing tees use by women provides a challenging, yet pleasurable golfing experience for both the low handicap female golfer and for those players who are not as long off the tee."

To obtain a copy of this illustrated two tee system for women, send \$5.00 check to the American Society of golf course Architects, 221 N. LaSalle St., Chicago, IL 60601.