A Guide for Green Committee Members
# A Guide for Green Committee Members

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>About the USGA Green Section</td>
<td>1</td>
</tr>
<tr>
<td>It’s Easy Being GREEN</td>
<td>2</td>
</tr>
<tr>
<td>Wanted: “Green Committee Member”</td>
<td>3</td>
</tr>
<tr>
<td>Congratulations! You’re on the Green Committee</td>
<td>4</td>
</tr>
<tr>
<td>Duties of the Green Committee</td>
<td>5</td>
</tr>
<tr>
<td>Duties of the Green Committee Chair</td>
<td>6</td>
</tr>
<tr>
<td>The Green Committee – Who and How Many?</td>
<td>7</td>
</tr>
<tr>
<td>Committing Time to Green Committee is Essential</td>
<td>8</td>
</tr>
<tr>
<td>Green Committee Communication Responsibilities</td>
<td>9</td>
</tr>
<tr>
<td>Golf Course Maintenance Standard Document</td>
<td>10</td>
</tr>
<tr>
<td>The Golf Course Budget</td>
<td>11</td>
</tr>
<tr>
<td>Long Term Capital Improvement Projects</td>
<td>12</td>
</tr>
<tr>
<td>Avoiding Common Mistakes</td>
<td>13</td>
</tr>
<tr>
<td>In Summary</td>
<td>14</td>
</tr>
<tr>
<td>Helpful References and Resources</td>
<td>15</td>
</tr>
</tbody>
</table>
There has not always been an impartial and authoritative turfgrass research and advisory agency, but in 1920, E.J. Marshall, an attorney from Toledo, Ohio, and the Green Committee chairman of the Inverness Club, was in charge of course preparations for the U.S. Open Championship. He sought, but could not find, impartial agronomic information. His efforts led him to the USGA and the United States Department of Agriculture (USDA). The two organizations agreed to collaborate in the development of scientific information relating to golf course turf. On November 30, 1920, the USGA Executive Committee formally created the USGA Green Section.

For more than 90 years, the USGA Green Section has been actively involved in funding research at land grant universities across the country. This ongoing research support continues to lead in the development of new and improved grasses and cultural management practices for the game of golf. The research program also has been expanded to investigate nutrient and pesticide fate, golf course construction issues, sustainable land and water use, and wildlife and habitat management. Numerous improved methods of turfgrass management are in use on golf courses today as a result of this research.

The USGA Green Section’s Turf Advisory Service (TAS) was officially established in 1953 with a goal of providing direct service to subscribing golf courses. Now called the Course Consulting Service (CCS), the Green Section’s goal of helping courses find answers, sharing practical ideas and suggestions, and disseminating new information remains.

Today there are 16 regional agronomists on the Green Section staff who are strategically located across the United States and they make hundreds of CCS visits to golf courses every year. This nationwide network has produced a priceless resource of expertise and experience for golf course maintenance and for the overall betterment of the game of golf. Each half-day or full-day CCS visit is followed by a detailed written report of the agronomist’s observations and recommendations. The report provides a permanent record that can serve as the basis for short and long term course improvement planning.

Other USGA Green Section programs involve regional education conferences, speakers for local, regional and national meetings, and preparation for conducting 13 annual USGA national championships. The Construction Education Program develops educational materials related to course management and golf course construction issues. Numerous books, reprints and other golf and turf-related publications are available through Green Section regional offices and the USGA Order Department. The Green Section portion of the USGA website features updates and information from all of the Green Section’s programs. Please visit the Course Care section of USGA.org for more information.
It’s Easy Being GREEN!

The word ‘green’ is a noun and has two proper golf meanings. The first is chiefly of Scottish origin and simply defines all aspects of a golf course, or all areas outside the confines of the clubhouse, as the ‘green.’ Thus, it can be used in relation to all outdoor areas of a golf course. The second meaning, most readily known to modern audiences, identifies the area of short grass surrounding a hole. This area generally is mown and groomed to the smoothest possible texture.

So, in keeping with the first meaning, a green keeper (also greenkeeper) is someone whose responsibilities entail maintaining all areas of the golf course outside the clubhouse. The term was changed to golf course superintendent in the United States several decades ago, but many practitioners maintain the term.

In almost all cases, the use of the word green in golf terminology should be singular. Green fee, green keeper, green committee and USGA Green Section all are correct uses. Green, in any golf terminology, does NOT refer to a particular color found on a golf course.
Seeking well-respected, even-tempered members for the Green Committee.

Must have time to play the course often and actively participate in regularly scheduled meetings.

All golfing handicaps welcome. Low handicap is not required, but working knowledge and respect of rules, etiquette and pace of play are strongly recommended.

The abilities to express genuine concern for member complaints and the wisdom to differentiate between valid criticism and unreasonable member expectations are an absolute necessity.

On-the-job training is available for golfers willing to make a commitment to learn. Compensation includes a unique opportunity to obtain the basic fundamentals of turf management. Must be willing to participate in the process of developing a reasonable set of maintenance standards for day-to-day course conditioning based on golfer desires and the limitations of the budget, labor and equipment.

Listening skills are more valuable than speaking skills. Must be approachable, considerate and willing to address concerns from golfers who have a wide range of abilities.

Meteorology degree not required, but candidates must understand that golf is an outdoor sport and that playing surfaces often are affected by the weather.

Highly desirable candidates possess thick skin, patience, an open mind, a sense of humor and the personal philosophy that golf is still a game.

Amateur architects, frustrated semi-professionals, and golfers who place personal agendas above the common interests of the membership need not apply.
As a Green Committee member, you have the responsibility to help oversee and direct considerable expenditures for the maintenance and improvement of your golf course. Your position is an important one. It is alive with challenge, potential and opportunity. Before becoming a member of the Green Committee, you undoubtedly held a certain pride in your home course. Now you share directly in the responsibility of maintaining this pride for your golf course!

This booklet is designed to help guide you past the pitfalls, show you the opportunities and assist in making your work an asset to your golf course and the environment. Some people will say that the job of the Green Committee chairman (or ‘member’) is the most thankless task in the world. But many others will tell you it can be the most rewarding volunteer service your course or club has to offer. The final outcome, just as the final putt, is up to you.

It is often tempting for a committee or chairman to take on projects of their own personal interest; however, it must be remembered that the committee should always act on behalf of the entire membership. This was summed up very well by Richard S. Tufts, former president of the USGA: “Your job as a Green Committee member is to serve your fellow members by maintaining the type of course the majority of them want ... a tough layout that is a challenge to the expert may not be enjoyable for the average golfer — of which there are so many. Certainly, your job is not to rebuild the course the way you want it.”
Duties of the Green Committee

It is the Green Committee’s role to see that golf course maintenance remains a high priority in relation to other functions of the club. You should not, however, become involved in the day-to-day management of the golf course. Rather, the Green Committee members consist of an advisory board that serves an important role in developing policy as well as long range initiatives.

Every Green Committee should have a portfolio that contains maps, diagrams and information pertaining to the entire course. Some clubs have maps of each hole, showing irrigation lines, drainage ditches, bridges, utilities, etc. Aerial photographs are excellent for this purpose. From this set of information, maps of the architectural, agronomic and landscape needs of all holes can be produced. Priorities should be assigned, and estimated costs should be thoroughly researched for any planned golf course improvement project.

Important undertakings for every Green Committee should:

• Provide a permanent record and history of all features and changes made to each hole for present and future Green Committees.
• Develop long-range plans for the golf course. This may include identifying course components (i.e. irrigation system, maintenance facility, design features) that need improvement, or areas of the course that require extra maintenance and repetitive repair.
• Provide a history of maintenance and construction costs of all features and improvements covered in cost studies.
• Promote better planning, budgeting and working standards.
• Establish standard procedures for purchasing machinery and supplies, hire consultants and staff, and define the authority and duties of the superintendent.
• Take time to meet with the golf course maintenance staff periodically.
• Tour the golf course turf care facility for new committee members.
Duties of the Green Committee Chair

The duties of the Green Committee chairman and members cannot be handled passively. It will take your time and attention to fulfill the job.

A golf course maintenance program is highly technical and encompasses many disciplines. It is not necessary to have specific knowledge of turfgrass management, but a good Green Committee chairman should be willing to learn and spend some time reading magazines and other materials dealing with the subject of turfgrass management. The committee chairman should gain sufficient knowledge to be able to communicate effectively with the superintendent and the golfers at your course. A list of suggested reference materials is included at the end of this booklet. Occasionally, the chairman should attend turfgrass meetings and educational conferences with the golf course superintendent.

A golf course maintenance program is an intricate combination of people (labor), products, equipment, pests, climate, grasses, soils, trees, ponds and streams. What is good for one golf course may not be what is best for another course down the road, across town or that you see on television. Don’t do things simply because someone else does them. Leave the agronomic programs up to the golf course superintendent and assistants, for it is their responsibility to manage turfgrass for golf.

The following list describes some functions that a good Green Committee chairman performs:

- Organize and hold regular meetings of the Green Committee. The meetings should focus on broad-based decisions about policy, budgetary issues, and the development and implementation of long range plans.
- With the superintendent and committee members, develop and maintain realistic golf course maintenance standards to provide guidance in regard to course conditioning goals and objectives.
- Be acquainted with the problems and the functions of the golf course superintendent. Good two-way communication between the chairman and the superintendent is essential. A good chairman acts as an advocate for the superintendent, yet is not afraid to be critical in an honest and direct manner. A good piece of advice is to advocate publicly, criticize privately.
- Act as a liaison with golf course members, board of directors, general manager/COO, pro shop, golf committee and the superintendent with respect to course operations.
- Keep up to date on golfers’ concerns, questions and comments about the golf course. There are no little complaints, and it is much easier to address concerns as they arise.
- Have a voice in developing the golf schedule and the number of tournaments and special events. Recommend that the maintenance calendar be set prior to, and with priority over, the tournament calendar. This allows major golf course maintenance, such as aeration, to be completed when conditions are optimal for turf recovery, thereby minimizing the length of disruption of play.
- Be sure the superintendent receives the tournament schedules and notices of special events that are of concern to his area of responsibility. The Green Committee chairman should have a thorough knowledge of the golf course in its best playing conditions, as well as its areas of weakness. Maintain regular contact with the golf course superintendent to discuss areas of concern and keep current on the progress of special projects.
- Employ a competent and progressive golf course superintendent. The superintendent should report directly to the Green Committee chairman.
• Assist the superintendent in an advisory, budgetary and policy-making capacity. There is no need to micro-manage the operation of the maintenance department. Make sure the superintendent has all the tools to succeed, such as reliable, operational equipment, an appropriate budget for realistic maintenance standard practices and the time to do what is expected. Be alert to problems involving labor availability, salaries, fringe benefits and retirement plans, as well as any local or political issues that can affect the maintenance and operation of the golf course.

• Give the authority to the golf course superintendent to close the golf course at any time because of adverse weather or turf conditions. This includes authority to prohibit use of golf carts when conditions justify.

The Green Committee — Who and How Many?

The Green Committee should represent a cross section of the members to avoid the common mistake of placing the responsibility of course policies and setup into the hands of only one or two of the elite golfers. Players of varying golfing abilities and demographics are desired to ensure that decisions benefit the majority of the golfing membership. The ideal Green Committee for most clubs would consist of a low handicap player and mid-high handicap player selected from the ranks of the men, women and senior demographic groups. People selected to serve on the Green Committee should be approachable and well respected by their fellow members. Most important is the ability to communicate the concerns of the membership to the committee, as well as provide news and updates from the committee.

It also is important that the committee be kept at a manageable size. A good guideline is to have an odd number of members on the Green Committee so a decision can always be reached. Also, keep in mind that the smaller the committee, the more manageable and productive it will be. Ideally, a committee of five people should be considered, with seven being the maximum. The members should be able to work together effectively and comfortably.
The Green Committee should contain a continuing nucleus of members, and not necessarily board members. However, the chairman should be a voting member of the club board of directors to put some teeth into the Green Committee’s recommendations. The best committee members are those who have an appreciation of maintenance problems and who are willing to learn and serve indefinitely. Committee members serve at the request of the committee chairman, but they may be re-appointed by succeeding chairmen to maintain a successful turfgrass management program.

Plagued by short terms, many Green Committees today are unable to contribute significantly to the improvement of their courses. There can be no effective long-range planning when committee chairmen and Green Committee members have only a one- or two-year tenure. Under such a state of constant change, the golf course superintendent wastes a great amount of time educating new committee members on the daily operations and long-range plans of the golf course. A wise and experienced green committee member is a valuable resource!

Furthermore, when an entire committee is turned over at one time, the continuity of ongoing programs and projects is often lost. Policies developed and implemented by one Green Committee can be reversed later by an entirely different group.

Green Committees should consider the long-term best interest of the facility, and not attempt to “put their mark” on the golf course. Short-term planning is expensive, and short-term Green Committees often become a liability. Successful business people often are shocked by such a waste of labor and expense within their golf course operation. Dr. Alister Mackenzie, the famous golf course architect, may have best summarized the pitfalls of short-term committees in his book, The Spirit of St. Andrews, when he wrote:

“The history of most golf clubs is that a committee is appointed, they make mistakes, and just as they are beginning to learn by these mistakes, they resign office and are replaced by others who make still greater mistakes, and so it goes on.”

Under such a system, it is difficult for the superintendent and the maintenance crew to work in any manner other than on a month-to-month basis. No one knows who the chairman will be next year, and a new chairman does not always recognize the accomplishments a superintendent made under prior leadership. The important feeling of teamwork between the superintendent and the chairman does not have time to develop. Sufficient lengths of term and continuity must be maintained on the Green Committee to work constructively with the superintendent and to accomplish both short- and long-term goals. More than any other club committee, the Green Committee needs time to accomplish desired results because nothing happens fast in agriculture, with the exception of crop failure!

This reasoning leads to one conclusion: A long term is needed for the Green Committee chairman (three to five years), with the possibility of reappointment at the end of that time. When a new chairman must be appointed, it is recommended that the person selected has actively served on the Green Committee for a minimum of two years prior to becoming the chairman. This action helps maintain committee continuity with the implementation of the long-range plan.

On a final note, golfers who agree to serve on the Green Committee must be able to commit the necessary time to attend regularly scheduled meetings. In addition, the most effective committee members make themselves available and approachable to others. It is difficult, if not impossible, to identify and address the concerns of the membership with respect to course policies and setup unless there is personal contact with a wide range of players throughout the season.
Green Committee Communication Responsibilities

Although the entire Green Committee is involved in the role of communicating about the golf course on many fronts, there are two specific areas that need to be handled by one individual, and that should be the chairman of the Green Committee.

Handling Golfers’ Concerns

The Green Committee chairman should assume the responsibility of receiving and dealing with complaints from the members and players directly. The chairman should understand that there are players of many different abilities, and in setting golf course maintenance standards he needs to consider how various playing conditions affect all players. The Green Committee chairman should be the direct link to the golf course superintendent.

Complaints and grievances often seem small until they are overlooked, so there should be an attempt to diffuse situations in a direct and timely manner. The Green Committee chairman must filter players’ complaints, and it is important that the chairman takes a stand for the golf course and the programs in place. He or she must be able to determine what an immediate priority is, and what is not.

Developing a Communications Program

An effective Green Committee, along with the golf course superintendent, should develop a communication program that keeps the board and the entire membership well-informed in advance of planned maintenance programs and activities. Electronic communication options today allow for regular updates of maintenance schedules and of current course conditions as well. These communications always should be educational and factual, and include current schedules for notifying the membership as to various events, such as: when the putting greens, tees or fairways will be aerated; when re-sodding work will be done; or when play likely will be interrupted, as examples.

A quick e-mail, an update to a golf maintenance link on the club’s website, a note in the club newsletter or a note on locker-room bulletin boards can prevent miscommunications and misunderstandings.

It is important to keep the turf management program in front of the members’ eyes. Many golfers enjoy knowing about course improvements and feeling part of the Green Committee and superintendent’s effort to produce the best possible playing conditions on their golf course.

To keep the membership informed about the golf course, you might plan an annual dinner meeting, a short program on turfgrass management or other special event. At any of these meetings, the chairman can explain special budgetary items and Green Committee agendas. The golf course superintendent can highlight accomplishments, special projects taking place and future improvements. A USGA Green Section agronomist could be present for the event, when scheduled as part of a CCS visit.

These events are a wonderful opportunity to tell of the successes, problems and challenges of turfgrass maintenance. Offering a question-and-answer period with the superintendent for advice on home lawn care, can be a fun part of an event. Educational materials are available from the USGA, the Golf Course Superintendents Association of America (GCSAA) and other organizations.

The benefits of communicating maintenance activities to the golfers cannot be overemphasized. Regular communication helps minimize grumbling and reinforces the appreciation of the golfers for the efforts of the golf course maintenance staff and the entire Green Committee.
**Green Committee Chair as Emergency Response Spokesman**

In the event of an emergency on the golf course, at the golf course maintenance facility or anywhere on the property, it is important to have a single spokesperson for communication purposes. The Green Committee chairman should fill this role. The chairman is in the best position to gather all pertinent information directly from the golf course superintendent and other course officials. Having an emergency communication tree in place ahead of time can prove invaluable under hectic situations. It also makes for good public relations policy in having a disaster plan document and emergency readiness plan in place.

**Golf Course Maintenance Standard Document**

Written guidelines that outline daily course maintenance with specific performance criteria should be developed. The guidelines clarify the membership’s desired level of maintenance and serve other purposes, such as: measuring the performance of the staff; resolving conflicts as to how the course should be maintained; and determining budgets, labor and equipment requirements. Written guidelines, or maintenance standards, provide seasonal and long-term direction for the golf course maintenance program and for future committees. It also can serve as a valuable communication tool.

The Green Committee, golf course superintendent, general manager/COO and head golf professional should develop the guidelines jointly. The guidelines must be realistic and flexible enough to accommodate seasonal requirements and special circumstances, while conforming to budgetary constraints. The guidelines should include written expectations for each part of the golf course, including tees, approaches, fairways, roughs, bunkers, putting greens, trees and woods and hazards. They should not be considered specifications. It is helpful to include information, if applicable, on maintenance frequency desired for each area, labor hours required, seasonal mowing height ranges, irrigation philosophy and equipment required. The following key topics may be included within the written guidelines for a particular part of the course. This partial list is by no means exhaustive.

- Cultivation timing and frequency
- Green speed
- Irrigation practices (color vs. playing quality)
- Course setup
- Course marking
- Cart policies
- Course closure for weather
- Environmental issues
- Tournaments
- Fairway widths
- Winter overseeding
- Mowing heights
Beside the quality of available personnel, the budget is the lifeblood of the golf course maintenance program and is one of the most important factors of the Green Committee’s work.

It is the Green Committee’s responsibility to make sure that course expectations are in alignment with the club’s ability to fund the maintenance program, and that the staff, equipment and resources required to meet those expectations are in place. Golf course maintenance standards should be established first, followed by the budget developed to meet them. USGA Green Section agronomists can assist in developing maintenance standards when course expectations and budgets are not in alignment. A written depreciation and replacement plan for maintenance equipment can be used to anticipate and budget for future equipment needs.

An important function of the course superintendent is to stay abreast of all golf course expenditures. The superintendent should be held responsible for the implementation of the maintenance program within estimated and approved budgets. Annual budget appropriations made available to the superintendent should not be cut later in the budget year. Any budget, however, must be flexible enough to accommodate changes in the work program, unexpected weather or emergencies, and price fluctuations.
Most parts of the golf course have a finite lifespan and need to be updated from time to time. Sometimes there is a desire on the part of the membership to add interest to the golf course or make the course more appealing to prospective members. Often times, such a desire is motivated by:

- Increasing the use of the golf course
- Deterioration of key parts of the infrastructure due to age
- A wish to reduce maintenance costs
- A desire to utilize improved turfgrass species or varieties for cost savings or more enjoyable play
- Fundamental weaknesses in construction or design
- Pride of membership and a desire to protect and enhance membership value

Remodeling or renovation of a golf course can also affect future operating budgets and labor requirements. Make sure the needed resources are available for the additional ongoing maintenance after the project is complete. This can be confirmed through the use and application of maintenance standards. As for example, on-going maintenance expenses will increase when sand bunkers are added to the course, requiring extra labor (raking, trim mowing, edging, etc.) and materials costs (sand replenishment).

When planning a renovation, take advantage of the services of your local USGA Green Section agronomist. He can make sure you have the latest information on putting green construction, improved turfgrasses, new maintenance techniques and the basic fundamentals of drainage, fertilization and golf turf management. Also, USGA agronomists can draw upon broad field experience to help your golf course avoid many of the common pitfalls that occur during renovation or reconstruction projects.
Avoiding Common Mistakes

A survey of the USGA Green Section staff revealed the following list of the ten most common mistakes of Green Committees:

1. **Poor communication skills** – Failure to communicate effectively with club members, the superintendent and other departments within the club leads to *mutual distraction* and the inability to move forward with important initiatives.

2. **Short tenure** – Frequent turnover keeps committee members in a continual learning mode.

3. **Unbalanced representation on the committee** – Committees that are unbalanced often fail to consider the effects of their actions on golfers of different abilities.

4. **Inability to make tough decisions** – Being on the Green Committee is not a popularity contest and sometimes unwelcomed decisions need to be made. Such judgments always should be made with the best interest of the golfers and the course in mind.

5. **Leaving a “mark” on the course** – Projects that serve a personal agenda are seldom in the best long-term interest of the golf course.

6. **Unrealistic expectations** – Programs for maintenance and improvement of the golf course should be supported with a realistic budget and resources to achieve the desired results.

7. **Micro-management** – The Green Committee chairman and members should avoid the temptation to micro-manage day-to-day operations. Interfering with the duties of maintenance personnel often leads to disorder and confusion.

8. **The figurehead chairman** – The role and responsibilities of the Green Committee chairman are very important, and the position should not be given to someone who is not willing to be actively engaged.

9. **Not devoting enough time to participate on the committee** – The committee member who does not have the time to participate fully, generally is not capable of making informed decisions.

10. **Shopping for the right opinion** – Golf course management is a complex endeavor. Seek opinions and information from unbiased and experienced resources, such as the USGA Green Section. Sometimes, this information is not what the committee wants to hear, but is in the best long-term interest of the course.
The Green Committee performs an important function for the club, and you will need patience, tolerance, tact and an honest desire to do a good job. But don't take yourself too seriously; remember that golf is a game. Most of all, have fun. The employees at your club, whether they are conscious of it or not, will be influenced by your interest and attitude.

As Dr. Alister Mackenzie pointed out many years ago, Green Committees are going to make mistakes. With luck, the learning curve can be shortened and common mistakes avoided by learning from the experiences of previous Green Committees.

Your effort and time spent on the Green Committee likely will be very fulfilling. Nothing is more satisfying as a Green Committee member than to have a club member say, “I have never seen the course in finer condition.” You have arrived. Congratulations!
Helpful References and Resources

Useful Articles for Green Committee Members


Turf Advisory Service can make a significant difference.  (http://turf.lib.msu.edu/2000s/2001/010112.pdf)


The ten most common green committee mistakes.  (http://turf.lib.msu.edu/2000s/2003/030901.pdf)

In search of the perfect golf course.  (http://turf.lib.msu.edu/2000s/2004/040101.pdf)

Setting standards: Creating effective written maintenance standards is easier than you think. (http://turf.lib.msu.edu/2000s/2005/050901.pdf)

Bonne Etiquette!: Golf course superintendents and the green committee can lead the way.  (http://turf.lib.msu.edu/2000s/2006/060118.pdf)

The best and brightest available: Hiring the right superintendent to fill an open position takes time and effort.  (http://turf.lib.msu.edu/2000s/2006/060701.pdf)

Perfecting a good relationship with your Green Chairman.  (http://turf.lib.msu.edu/2000s/2006/060906.pdf)

The role of the green chairman: Lessons learned while being on the green committee for more than 30 years. (http://turf.lib.msu.edu/2000s/2009/090708.pdf)
Helpful Organizations for Green Committee Members

USGA Green Section:
http://www.usga.org/CourseCareLanding.aspx?id=21474846413

Audubon International:
www.auduboninternational.org

Michigan State University Turfgrass Information Center:
www.lib.msu.edu/tgif

Golf Course Superintendents Association of America:
www.gcsaa.org

American Society of Golf Course Architects:
www.asgca.org

Golf Course Builders Association of America:
www.gcbaa.org
Dictionary of Golf Turfgrass Terms

A

acid soil — A soil with a pH below the neutral point of 7.0. Turfgrasses generally prefer slightly acidic soils.

acid injection — Used to treat poor quality irrigation water.

aerate — Process of aerating soils with hollow tines, solid tines, water or air injection; used synonymously with aerify.

air movement — Air movement across a fine turf area is important to reduce surface temperatures, dry the surface and minimize disease activity. It usually is accomplished by pruning nearby trees and understory shrubs, but also may be created with the use of electric fans.

algae — A dense growth of minute, single-celled plants containing chlorophyll that develops on thin or bare areas of turf in hot, humid weather when soils are saturated with moisture.

alkaline soil — A soil having a basic reaction or a pH above the neutral point (pH 7.0).

approach/apron — The fairway areas in close proximity to and in front of the putting green, adjoining the putting green collar. This area is normally mowed at fairway height, but sometimes is mowed slightly closer with smaller equipment designed to preserve or improve turf quality and firmness.

B

ball mark — A depression and/or a tear in the putting green surface made by the impact of a golf ball.

bench setting — The height at which a mower is set in order to achieve a specific height of cut.

biological control — Control of turfgrass pests by the use of living organisms.

blight — A general term used to describe symptoms of plant disease that may include sudden wilting or death of leaves, flowers, stems or entire plants.

broadleaved — Any of the plants that grow in a turfgrass stand; (e.g., dandelion, plantain, clover, chickweed, knotweed, etc.).

brushing — (1) In putting green maintenance, the practice of lifting excessive leaf and stem growth of grasses prior to mowing. Usually accomplished with brushes affixed ahead of the cutting reel. (2) Brushes or drag mats often are used to work sand into a putting surface following a cultivation event or topdressing application.

buffer zone — An unmown or infrequently mown area of higher vegetation not treated with fertilizers or pesticides, usually used as a protection zone around water features. Buffer zones provide a filtering mechanism before runoff water enters a water feature.

C

certified seed or plants — Usually the progeny or increases of registered or foundation stock maintained so as to preserve genetic purity. The material is inspected by a certifying agency, usually the State Crop Improvement Association.

chlorosis — The condition in plants relating to the loss or lack of green color. May be caused by disease activity, herbicide activity, albinism, or nutritional deficiency.

collar — An area of turf adjoining the putting surface which is mowed at a height of cut intermediate between the fairway and the putting surface. This cut normally is between 0.19 (3/16) and 0.38 (3/8) inch. The typical collar width is approximately 22-36 inches, but varies depending on the total green area and available mowing equipment.
**combing** — Using a comb, with metal teeth or flexible tines, fastened immediately in front of a reel mower for the purpose of lifting stolons and procumbent tying down shoots so they may be cut by the mower.

**compaction** — State of being pressed closely together, as soil particles. Soil compaction prevents adequate water and air penetration, and reduces turfgrass root growth.

**compost** — A decomposed organic material often used as a soil additive to increase organic matter content, improve water and nutrient retention, and improve soil structure.

**contour mowing** — To shape the borderline between the fairway and rough to add interest, direction or strategy to the golf hole, as in fairway contouring.

**cool season grasses** — Grasses that grow more actively during cool portions of the growing season, primarily spring and fall (e.g. bentgrass, Kentucky bluegrass, *Poa annua* and perennial ryegrass).

**coring** — A term frequently used interchangeably with hollow core aeration; the removal of a soil core from a turfgrass area as with a soil probe or hollow metal tines.

**crown hydration** — A term used to describe a form of winter injury in which the plant freezes and causes physical injury to the plant cells.

**cultivar** — A horticultural variety is produced by selective breeding.

**cultivation** — Turfgrass cultivation is a mechanical procedure such as spiking, grooving, high pressure water injection, and deep tine, deep drill, solid tine or hollow tine coring on established turf without destroying its sod characteristics.

**cutting height** — The distance above the soil line that grasses are clipped.

**D**

**desiccation** — Drying. A type of winter injury sustained on exposed turf areas when subjected to high winds.

**dethatch** — The procedure of removing an excessive thatch accumulation.

**dormant** — Resting, or non-vegetative growth state, as it pertains to turfgrass growth.

**E**

**effluent water** — see recycled / reclaimed / reuse water

**erosion** — The wearing away of the soil or land surface by running water, wind, or other geological agents.

**evapotranspiration** — The combination of soil evaporation and transpiration from the plant. Total water loss in vapor form from plant and soil.

**F**

**face/bunker** — The slope or incline of a bunker constructed in the direction of the putting green, which is intended to create an obstacle for a player to negotiate during play.

**fairway** — There is no precise definition in the Rules of Golf for fairway. It is deemed to be an area between the tee and putting green included in the term “through the green.” In terms of maintenance, fairways are areas of the course that usually are mowed at heights between 0.375 and one inch, depending upon grass species and cultural intensity desired. Fairways vary from about 25 yards to more than 100 yards in width, depending on the caliber of the golf course involved and limitations imposed by architecture or terrain.

**fertigation** — The application of fertilizer through an irrigation system.

**fertilizer** — A nutrient material applied to plants to assist growth.
**foliar fertilizers** — Soluble plant nutrient materials applied to the leaf surface and capable of being absorbed through leaves.

**footprinting: frost** — Discolored areas of dead leaf tissue shaped in the form of foot impressions that are left after walking on live, frosted turfgrass leaves.

**footprinting: wilt** — Temporary foot impressions left on a turf because the leaves of grass plants are suffering from wilt. The plants have insufficient turgor to spring back after being walked on or traveled over by maintenance equipment.

**fungicide** — A chemical that kills or inhibits fungi.

**fungus** — A low form of plant life which, lacking chlorophyll and being incapable of manufacturing its own food, lives off dead or living plant or animal matter.

**G**

**germination** — Initial growth in which a seed or spore sprouts. The growth in a seed, plant bud or joint.

**grain** — As applied to putting greens, the tendency for grass leaves and runners to make horizontal growth in one direction, which, when excessive, interferes with the true natural roll of the ball.

**grooming** — In putting green maintenance, the practice of lifting leaf and stem growth of grasses prior to mowing with a specialized vertical mowing attachment affixed ahead of the cutting reel.

**H**

**heaving** — A swelling or rising of the surface; the freezing and thawing action of frost that sometimes dislodges the crown of a plant, leaving it partially or fully exposed above the soil surface.

**herbicide** — A chemical used to kill weeds or herbaceous growth.

**hydroseeding** — A high pressure spray technique for applying seed, mulch and fertilizer in a water slurry over a seedbed.

**I**

**infiltrate** — To filter into; the penetration of water into soils.

**infiltration rate** — The speed at which water moves into a soil or root zone mixture. Frequently confused with Saturated Hydraulic Conductivity (SHC) — a laboratory procedure used to measure the speed at which water moves through the pores of the soil.

**inorganic fertilizer** — Plant nutrient materials derived from mineral sources or which are synthesized chemically. As contrasted to fertilizer materials derived from organic sources.

**insecticide** — A chemical used to control insects.

**L**

**leaching** — Downward movement in soil of soluble nutrients or other ions past the rootzone. Removal of accumulated soil salts resulting from heavy, flushing irrigation cycles.

**lip** — The greenside bunker edge, usually two to four inches above the sand level, that prevents a player from putting out of the bunker.

**liquid fertilizer** — Plant nutrients handled or applied in solution.

**localized dry spot** — A dry area of sod and soil that repels water. Caused by various factors, such as excessive thatch or fungal organisms. Also known as — hydrophobic.
M

**matting** — Working topdressing or other materials into a turfgrass area with drag mats, usually made of fiber, rubber or metal.

**microclimate** — The climate of a small, distinct area such as a golf hole, green site, etc.

**microenvironment** — The area in the immediate vicinity of the turfgrass plant, from the surface to the depth of root penetration into the soil.

**microorganisms** — Small organisms, such as bacteria and other minute entities, invisible to the unaided eye.

**mulch** — A material such as straw, netting, geotextile cover, burlap, etc., spread over seeded or stolonized areas to protect them from erosion, moisture loss and temperature extremes and to enhance germination and growth.

N

**native grasses** — Grasses that are indigenous or which occur naturally in a particular region.

**nematicide** — A chemical agent used to kill or suppress nematodes.

**nematode** — Small, round worms, usually microscopic and colorless, that live in moist soil, water or decaying or living organic matter. Plant parasitic forms puncture plant tissues by means of a stylet and live by sucking the juice of the plant.

**noxious weeds** — Weeds categorized by law as objectionable in a seed lot for commercial sale.

**nursery** — An area set aside for testing new turfgrass cultivars and chemicals and for growing replacement turf primarily for putting greens and tees.

**nutrients, plant** — The elements taken in by the plant essential to its growth.

O

**organic fertilizer** — Fertilizers containing carbon and hydrogen.

**organic, natural** — Fertilizers derived from naturally occurring, complex organic compounds not readily soluble in water.

**organic, synthetic** — Man-made organic fertilizers such as urea, IBDU or urea formaldehyde. All are slow release nitrogen sources, except urea.

**organic matter** — Material derived from plant or animal source. Often added to soil mixtures to provide added water and nutrient holding capacity to the soil. Also may refer to plant matter produced by turf. e.g. Thatch.

**organic soil** — A general term used in reference to any soil, the solid part of which is at least 20 percent organic matter.

**overseed** — To sow seed over an area that is sparsely covered with some kind of vegetation or to plant a winter turf of a cool season species within a dormant warm season turf. Also known as — interseed.

P

**pathogen** — An organism that causes disease.

**peat** — Unconsolidated material consisting largely of non-decomposed or slightly-decomposed organic matter accumulated under conditions of excess moisture.

**perennial grasses** — Lasting or continuing from year to year in areas where adapted.

**pesticide** — An agent used to control pests such as weeds, insects, or diseases.

**pH** — A numerical measurement of the hydrogen ion concentration. Values below 7 are increasingly acid; values above 7 are increasingly alkaline.

**phytotoxic** — Harmful to plants.
plugging — The vegetative propagation of turfgrass by means of plugs or small sod pieces. A method of establishing vegetatively propagated turfgrasses, as well as repairing damaged area.

poling — Using a long (bamboo or fiberglass) switch or pole to remove dew and exudations from a turf by switching the pole in a wide arc while it is in contact with the turf surface. Also used in breakup of clumps of clippings and earthworm casts. The practice is usually confined to putting greens.

potable water — Water that is at a quality level fit for drinking.

profile, soil — A cross-section of soil that shows the layers or horizons.

rebuilding — A term that refers to practices involving complete changes in the total turf area, i.e., reconstruction of a green, tee, fairway, rough or any other area of the golf course.

recycled / reclaimed / reused water — A water source not considered of potable quality that has been used for another purpose prior to use as irrigation. Recycled / reclaimed / reused water can include, but is not limited to, treated residential or industrial sewerage effluent, storm runoff and/or recaptured irrigation runoff. These water sources often contain higher quantities of salts than groundwater or potable sources. Recycled water is the preferred terminology.

renovation — Turf improvement involving replanting into existing live and/or dead vegetation.

saline soils — Soils in which there is a heavy accumulation of salts that adversely affects plant growth. Soils are categorized as saline when soluble salts reach or exceed ECe > 4.0 dSm.

saline-sodic soils — Soils with both a high salt content (ECe > 4.0 dSm-1) and high exchangeable sodium percentage (ESP > 15%).

salt index — Used to measure the effect of fertilizers on soil solution, and is expressed as a ratio of increase in osmotic pressure produced by a material to that produced by the same weight of sodium nitrate.

sand — See ‘soil separates.’

scald — Turf damage occurring under conditions of excessive water, high temperatures, and intense light.

scalping — The term for removing an excessive amount of the green leaf surface, leaving a stubbly brown turf. Continued scalping will weaken or kill the turf.

seed bed — An area of soil prepared for seeding.

seed head — Inflorescence; the fruiting structure of a grass plant.

selective herbicide — One that can be applied to a mixed stand of plants, but will selectively kill certain plants without injuring others.

slicing — A form of cultivation involving a deep, vertical-cutting action, used to open the soil as well as the turf.

sod — Plugs, blocks, squares or strips of turfgrass with adhering soil used for vegetative planting.

sodding — The planting of sod.

sodic soil — Soils with a high percentage of cation exchange sites occupied by sodium (> 15%). The high sodium percentage causes infiltration and permeability problems due to de-flocculation of soil particles.
sodium absorption ratio (SAR) — Used to determine whether sodium levels in water will cause soil structure to deteriorate. A ratio of calcium, magnesium and sodium ions in irrigation water.

adjusted sodium absorption ratio (SARadj) — A calculated value used to predict an increased sodium hazard of an irrigation source with a high bicarbonate content. A ratio of calcium, magnesium, sodium, and bicarbonate ions in irrigation water.

<table>
<thead>
<tr>
<th>Sodium Hazard</th>
<th>Adj. SAR</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>&lt; 10</td>
<td>Can be used to irrigate almost all soils without deterioration of soil structure.</td>
</tr>
<tr>
<td>Medium</td>
<td>10 - 18</td>
<td>Appreciable sodium hazard on fine-textured soils. Best used on coarse-textured soils with good drainage.</td>
</tr>
<tr>
<td>High</td>
<td>18 - 26</td>
<td>High levels of sodium accumulation on most soils. Will require intensive management.</td>
</tr>
<tr>
<td>Very High</td>
<td>&gt; 26</td>
<td>Generally not suitable for irrigation. Requires intensive management.</td>
</tr>
</tbody>
</table>

soil analysis: chemical — The process of determining the relative amounts of nutrients in the soil available to the grass plant.

soil analysis: physical — The process of determining the percentages of sand, soil and organic matter required for the best physical arrangement of soil separates for a mixture suitable for putting green root zone mix.

soil modification — Alteration of soil characteristics by adding soil amendments such as sand, peat, etc.; commonly used to improve physical condition.

soil probe — A tool used to remove a soil core, (usually ½ – 1 inch in diameter, four to ten inches long), from turf areas to examine root development, thatch depth, topsoil depth, soil arrangement, and soil moisture.

spiking — The act of perforating turf and soil crust by use of solid tines, spikes or blades.

spray drift — The aerial movement of small spray particles away from the target area.

springing — The planting of stolons (runners), rhizomes or vegetative segments of plants in furrows or small holes.

step cut — An intermediate rough cut usually the width of a triplex machine around the fairway perimeter. Mowing heights usually range from 1 inch – 1.25 inch.

Stimpmeter® — An implement used to measure putting green speed uniformity.

stolons — Creeping, trailing or reclining stems or runners above ground that may produce roots and new stems and become independent plants.

stolonize — To plant surface runners or stolons.

sulfur burner / sulfurous generator — Used to treat poor quality irrigation water that contains both excessive bicarbonates and a high sodium hazard.

susceptible — Lacking the inherent ability to resist. Turf may be susceptible to diseases, insect damage, weed encroachment, traffic injury, etc.

syringing — Light sprinkling of water on turf, usually done during the hot part of the day to prevent wilting. The goal is to apply enough water to wet the leaves and cool the turf, but not wet the soil.

temporary grasses — Grasses considered to be nurse grasses, which are short-lived in duration, but valuable to soil stability until the permanent grasses form a turfgrass cover. Also, overseeding grasses used in southern climates to provide winter color while permanent grasses are dormant.
thatch — A tightly intermingled layer of dead and living parts (roots, stolons, shoots, stems, etc.) that develops between the green vegetation and soil surface.

tissue analysis — Chemical analysis of turfgrass leaf, stem, or root tissue with the purpose of determining nutrient content.

topdressing — A sand, or a mixture of sand/soil/organic matter used for the purpose of improving the surface, and for leveling, smoothing, covering stolons or sprigs in vegetative planting, as an aid in controlling thatch, and in maintaining biological balance.

toxicity — Quality, state or degree of being toxic.

transition zone — Commonly referred to as the geographical zone which is too far north to grow warm-season grasses well and too far south to grow cool-season grasses well.

turf — A vegetative ground cover composed of close cut, thickly growing, intertwining stems and leaves of grass plants; sod.

turfgrass — A grass used in the production of turf.

vital seeds — Seeds capable of germination, growth, and development.

W

warm-season grasses — Grasses that grow most actively during the summer months, (e.g. bermudagrass, buffalograss, seashore paspalum, zoysiagrass).

water analysis — The process of determining the relative amounts of ions (nutrients and salts) in water to determine its quality for irrigation purposes. Used to predict adverse effects upon plants and soil structure.

weeds — Plants growing out of place; undesirable or unwanted plants.

wet wilt — When a plant wilts from lack of water even though standing in water. Roots do not function properly. Water and oxygen movement become impaired with excessive amounts of water in the soil profile.

wilt — Loss of leaf turgidity. Drooping of plant leaves due to inadequate water supply or excessive transpiration. Also a vascular disease which interferes with utilization of water by a plant or to a toxin produced by an organism.

winterkill (injury) — Term applied to injuries of turf that occur during the winter, and become evident the following spring.