

Going against the grain

As one superintendent has discovered, some accepted practices — such as reducing “grain” — do not fit all golfers’ expectations.

Douglas T. Linde, Ph.D.

KEY POINTS

- Grain affects both ball roll distance and direction because the friction it creates is not equal in all directions.
- Huntingdon Valley Country Club’s members and superintendent developed a maintenance philosophy that emphasizes a return to conditions as they were during golf’s “golden age.” Those conditions include grain on the greens and drying out fairways and greens.
- The superintendent has a course-maintenance program — types of grasses, mowing heights, herbicide usage — to encourage grain.
- To achieve firmer, drier and faster fairways and greens, the members agreed to sacrifice color. A variety of practices are used to enhance drought tolerance.
- The superintendent says he is willing to learn exactly what members want and give it to them, while communicating the potential consequences. He also operates with highly detailed, long-term quality standards and objectives.



Photos courtesy of Douglas Linde

Huntingdon Valley CC superintendent Scott Anderson tries to fulfill members’ requests to create challenging conditions by encouraging “grain” and by drying out fairways and greens so they are firmer and faster.

In the golf world, “grain” is a term used to describe a condition in which turfgrass leaves and stems grow horizontally rather than vertically. It is usually considered undesirable on putting greens.

Manufacturers sell all kinds of mowing equipment and attachments designed to help reduce grain on putting greens. Brushes, combs, rollers and vertical mowers are just some of the weapons in superintendents’ arsenals to combat grain. Probably one of the best methods to reduce grain is to establish turfgrass varieties that naturally grow more upright. For many years turfgrass breeders have been developing varieties of

bentgrass and bermudagrass that grow more vertically. As a result, grain has become quite rare on modern greens.

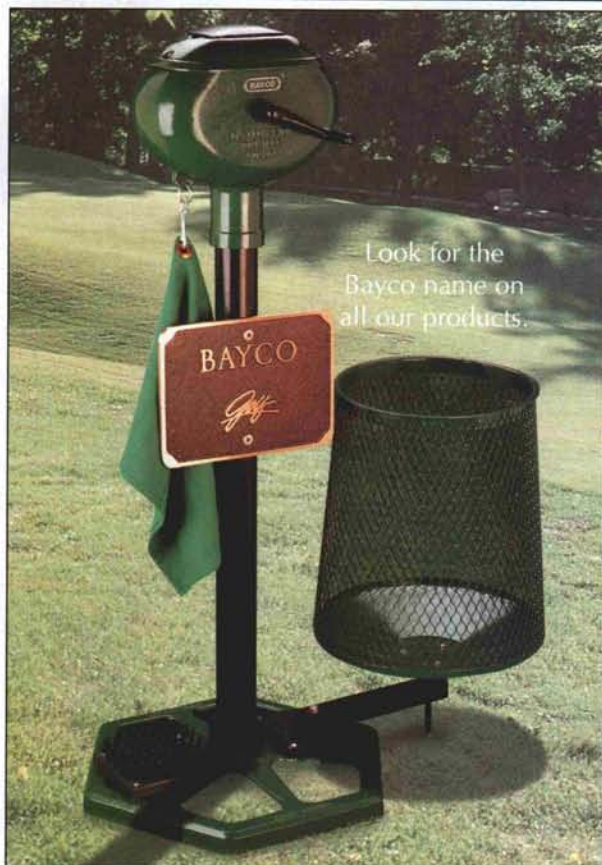
Seeking ‘true’ greens

Why do superintendents and scientists spend their time and money trying to remove grain from putting greens? The answer is simply that golfers and their golf organizations want it removed. When grain becomes significant on a green, it results in a putting surface that is less consistent and less “true” than a green without grain.

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On most golf courses, it's rare to find bentgrass greens that have significant grain. According to Huntingdon Valley member Linc Roden, author of the book, "Golf's Golden Age: 1945-1954," years ago most bentgrass greens were grainy, and reading and negotiating the grain was part of the game.

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A consistent and "true" putting surface can be described as one in which ball roll distance and direction are affected by topography alone, and the friction created by the turf is equal in all directions. Grain affects both ball roll distance and direction because the friction it creates is not equal in all directions.

A ball rolled with the direction of the grain will travel farther than a ball rolled in the opposite direction, against the grain, because the ball encounters less friction from the turf when traveling down-grain. A ball rolled perpendicular to the direction of the grain will tend to break more toward the down-grain direction.

Thus, putting on grainy greens is more challenging because golfers must not only assess topography but also the direction of the grain. Golfers assess grain by examining the turf leaves and by observing the light reflection from the turf. More light is reflected from the leaves as you look in the down-grain direction, so the turf color appears lighter than the "against the grain" direction. This is the same concept of reflectance used to produce dramatic striping patterns on turf.

A grainy challenge

While most superintendents are removing grain from their putting greens, Scott Anderson, superintendent at Huntingdon Valley Country Club and a 17-year GCSAA member, is encouraging it on his creeping bentgrass/annual bluegrass greens. Why would he do such a thing? Because the membership wants the increased challenge that "grainy" greens provide. To understand why golfers would want this type of challenge, it helps to know some of the history of the course and its members.

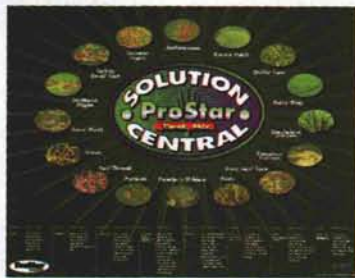
Huntingdon Valley was created by William S. Flynn in 1927 along the rolling hills of suburban Philadelphia. The original layout was 27 holes but was reduced to 18 holes during the 1930s for financial reasons. In 1997, the layout once again became 27 holes when the closed holes were restored.

The membership consists of many low-handicap golfers. About 40 members have handicaps of 6 or less. Anderson says good golfers are attracted to Huntingdon Valley because the course design requires a variety of shots and tends to be rather difficult. Also, higher-handicap golfers do not mind the difficulty because

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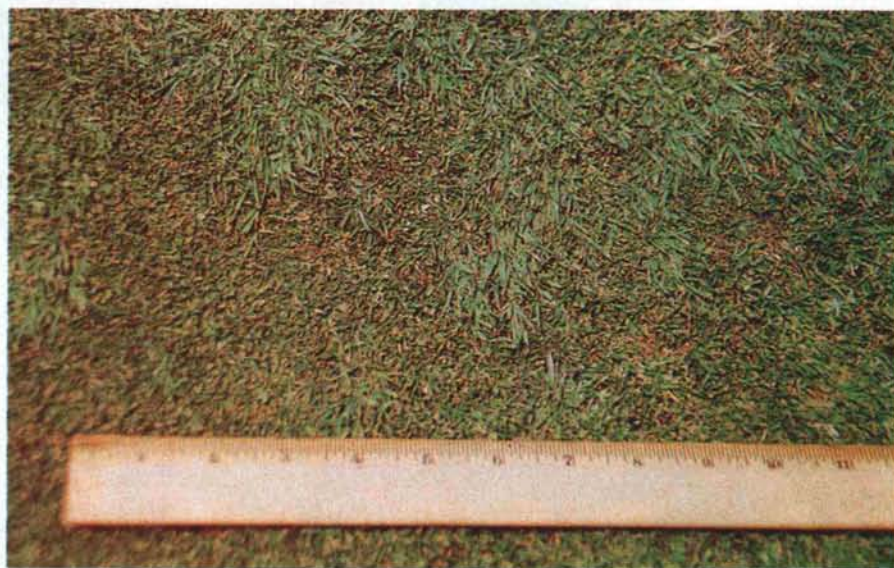
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A ball encounters less friction when traveling down-grain, so it will travel farther than a ball rolled against the grain. A ball rolled perpendicular to the grain will tend to break more toward the down-grain direction. Also, the horizontally oriented leaves and stems tend to grow downhill.

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they like the reputation and tradition of the course.

Members understand and appreciate the original design and playing conditions of their course. Huntingdon Valley has made a commitment to restoring the original character of play as intended by Flynn. Besides resurrecting the abandoned nine holes, the existing 18 holes have undergone some minor changes in the last few years.

Linc Roden is one Huntingdon Valley member who has played a key role in developing the maintenance philosophy. Roden grew up playing golf on the course during the "golden age of golf." In his book, "Golf's Golden Age: 1945-1954," Roden describes golf and golf course conditions during that time.

A major theme in the book is that many changes in rules, equipment and course maintenance since that period have resulted in the removal of various challenges originally inherent to golf. This includes the removal of grain from greens and the elimination of firm, dry fairways and greens with irrigation. Roden suggests encouraging grain, drying out fairways and greens, banning yardage markers and books, deadening the ball and playing the ball as you find it.

His strong conviction about playing golf as it was intended during its "golden age" has had a significant influence on maintenance practices at

Huntingdon Valley. On most golf courses, it's rare to find greens that have significant grain — especially bentgrass greens. Roden says that years ago most bentgrass greens were grainy, and that reading and negotiating the grain was part of the game.

Going for the grain

Anderson uses a variety of practices to encourage grain. The greens, which range from 70 to 80 percent bentgrass and 20 to 30 percent *Poa annua*, are overseeded annually with Penncross creeping bentgrass. When compared with other bentgrass varieties used on putting greens, Penncross has a coarse leaf texture, very aggressive growth and high seedling vigor. Anderson does not use the newer bentgrass varieties because he believes they grow too upright for his requirements. He tried introducing Seaside creeping bentgrass a few years ago because of its grainy growth habit, but it did not successfully establish.

Depending on the time of year, mowers are bench-set between $\frac{7}{64}$ inch and $\frac{9}{64}$ inch. Mowers carry solid rollers and no brushes, combs or vertical blade attachments. Occasionally, Anderson grooms the greens lightly with vertical blades attached to a triplex mower to prevent grain from getting too severe. Although he does not measure leaf blade

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lengths with a ruler to assess grain, he says he tries to keep blade lengths somewhere between 3/8 inch and 1/2 inch. Once a week, the greens are rolled with manually operated drum rollers immediately following mowing.

In addition, Anderson encourages grain by regularly applying low doses of trinexapac-ethyl (Primo) starting near the end of May and continuing through the summer. Trinexapac-ethyl widens leaf blades, suppresses vertical shoot growth and may even enhance lateral shoot growth without suppressing root growth. Also, at low rates the chemical suppresses *Poa annua* more than bentgrass. This causes the bentgrass to "creep," or grow laterally, into the suppressed *Poa annua*.

Anderson believes grain has some agronomic benefits. The larger leaf blades promote a larger shoot and root system. There are also fewer plants per area, which reduces competition for nutrients and water among plants. A turf stand that has larger plants is typically more stress tolerant than one with smaller plants.

During Roden's tenure as green chairman from 1982 to 1986, he challenged Anderson to change the playing conditions in other ways as well. Roden encouraged Anderson to change the fairways and greens from soft and lush to firm, dry and fast. The original design by Flynn required players to bounce the ball onto the green rather than landing the ball directly onto a soft, receptive green. To accomplish this, Anderson irrigates his fairways and soil-based push-up greens as little as possible.

The members and Anderson realize that some of the turf may go dormant and brown during the summer, but they have agreed to sacrifice color to achieve their desired playing conditions. When greens are irrigated, it is done lightly and frequently using quick-coupler impact sprinklers or hand-held hoses. Anderson tries not to irrigate the soil—just the leaves, stems and crowns. He says that during the summer the soil can become so dry it can be difficult to use the cup cutter.

To help the turf survive the dry conditions, Anderson uses various practices

that enhance drought tolerance. For example, nitrogen fertilizer amounts per season are usually less than 1 pound; potassium levels are kept high; root enhancing hormones are regularly applied from the end of May through the summer; and core cultivation is done twice per year using 1/4-inch-diameter tines to a depth of 3 inches.

Giving them what they want

Anderson has worked at Huntingdon Valley since graduating from Delaware Valley College in 1980 with a bachelor of science degree in agronomy. He became head superintendent in 1983. He attributes his longevity at the club to his willingness to learn exactly what members want and to give it to them while communicating the potential consequences.

In addition, he says that a set of highly detailed, long-term quality standards and objectives help make his job easier because he does not have to change his maintenance program with every new green chairman. These standards and objectives, which are reviewed annually, were developed by Anderson, the green committee and the club's board of directors.

During his years at Huntingdon Valley, Anderson has been encouraged by the members to experiment with different maintenance practices that will help achieve some of their objectives. He says that some of the unique demands necessitate on-site experimentation. Often, to meet the demands, he has to rely on his basic understanding of soils and plants to create his own solutions, rather than finding solutions in a turf management book or course. He admits he doesn't always "go by the book."

For example, as part of the restoration of the abandoned nine holes, the members wanted the restored greens to be similar to the greens of the existing 18 holes — so similar that they were willing to forgo today's advances in greens construction to play on what the original architect provided. To create a soil profile similar to the existing greens, Anderson had to determine the best construction methods and maintenance practices, so he developed some experimental greens.

The maintenance philosophy at Huntingdon Valley is certainly unique. Although some of the members' requests are very different from what is commonly expected on most courses today, Anderson thrives on the maintenance challenges those requests bring. He and Huntingdon Valley are definitely "going against the grain."

Anderson's experience at Huntingdon Valley is an example of how superintendents can challenge themselves, their crews and the turfgrass management textbooks instead of discouraging certain requests from golfers or employers. Through their experimentation with new methods, practices and equipment, superintendents lead the revolution in golf course maintenance.



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