All Things *Considered*

Grain on the Brain

Along with putting green speeds, the effects of grain on ball roll receive too much television air time.

BY JOHN FOY

I was bitten by the golf bug early in life, and after almost 40 years I still have a passion for the game. I was fortunate to find a career that allows me to be directly involved in golf. Even though I am out on courses almost every day, I still make it a point each weekend to check out televised golf. However, for the past few years, the volume of the telecast is usually turned down or even muted because I get so frustrated by the constant commentator banter discussing how grain affects putts.

In James B. Beard's book *Turf Management for Golf Courses*, grain is defined as "the undesirable procumbently oriented growth of grass leaves, shoots, and stolons on putting greens; a rolling ball tends to be deflected from a true course in the direction of the turf grain orientation." In other words, the grass leaves and runners are growing horizontally in one or more directions. Historically, grain has occurred with all putting green turfgrass, but it tends to be especially pronounced with stoloniferous turf species such as the creeping bentgrasses and bermudagrass. In the plant world, the stimuli of sunlight and gravity are the primary controlling factors affecting growth habit and bending movements. Thus, while turfgrasses are not considered to have strong phototrophic responses like sunflowers and follow the sun across the sky each day, grain formation in an east-to-west pattern can occur. Gravity has a much stronger influence on turf growth, and as a result grain patterns are consistently oriented downhill.

There is no denying that, in the past, grain was a factor on putting greens. Growing up in the South and playing primarily on Tifgreen (328) bermudagrass greens maintained at a height of cut of 0.186 to 0.250 (3/16 to 1/4) inch, being able to read the grain was essential. Putting into the grain (and uphill) meant that the putt would be extremely slow, and you had to really give it a good rap to get the ball to the hole. Putting down grain or across the grain naturally had an impact on both speed and amount of break to play. Bermudagrass greens were always the worst as far as grain was concerned, but it also occurred on northern bentgrass and less so on *Poa annua* greens.

Beginning in the early 1980s and continuing through today, much more intensive putting green management has been employed in pursuit of faster speeds, but a reduction in grain and its influence on ball roll is a benefit of the advances that have been made in putting green management. Routinely changing the direction of mowing patterns, using grooved rollers on the mowing units, verticutting, brushing, groomer attachments, and frequent, light topdressing are some of the standard practices for promoting an upright shoot growth character and in turn minimizing grain.

There is a consensus among the Green Section staff and golf course superintendents at facilities where professional events are hosted that the biggest reason why the effect of grain is not a factor today is the extremely low heights of cut being practiced. It was not that long ago that a height of cut of 0.156 (5/32) inch was considered "pushing the envelope." However, today there are mowing units that can be set at a height of cut of 0.100 (1/10) inch or less, and new turf varieties or cultivars can tolerate these extreme heights, at least for short periods of time. At very low heights of cut, there is simply not enough leaf surface area in contact with the ball to affect its roll. In an unpublished university study, it was found that at a height of cut of 0.125 (1/8) inch, there was no measurable effect of grain on ball roll. With long putts of 30 feet or more, wind was the principal factor causing balls to go off line.

Along with the practice of lower heights of cut, double cutting and/or rolling of greens are now routine practices used to provide faster and smoother surfaces. It has been my observation that with frequent rolling of bermudagrass greens, grain patterns tend to be highlighted. An interesting phenomenon with the ultradwarf bermudas is the occurrence of swirling patches of gain. Yet again, this horizontal leaf blade orientation does not affect ball roll.

Even with the most intensively managed putting greens, some horizontal leaf growth can be found and no doubt some will continue to expound on the perceived effects of grain on ball roll. However, for the vast majority of golfers, gravity rather than grain should be the concern. Accurately determining whether a putt is going uphill or downhill will lead to greater success compared to constantly having "grain on the brain."

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