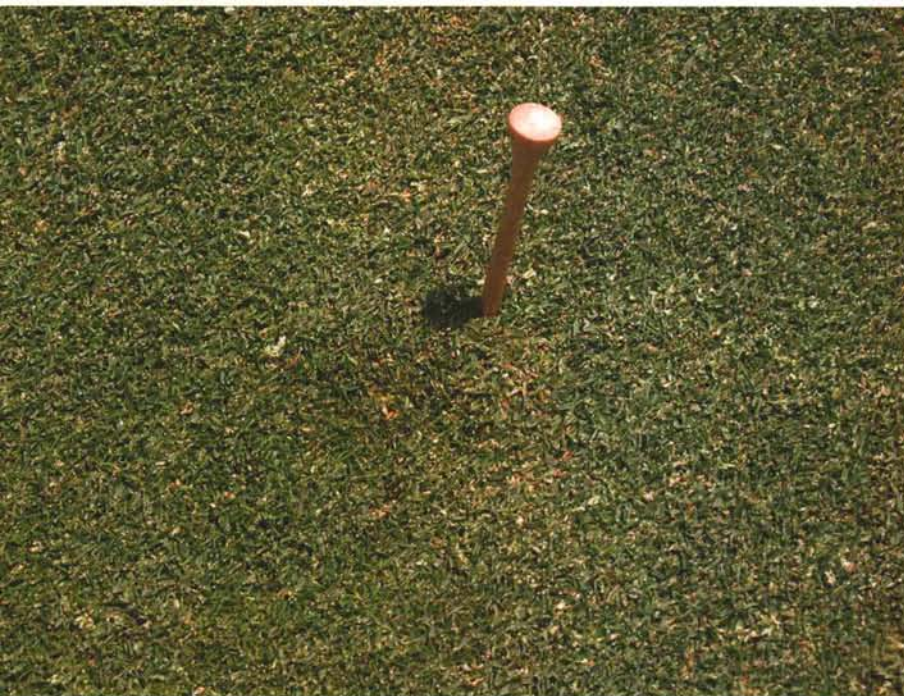


The Anatomy of a Pitch Mark

Your greens are talking to you. Are you listening?

BY STANLEY J. ZONTEK



A Type I pitch mark — The Bruise. This type of ball mark is most common on firm greens. It is hard to find but easy to repair.



A Type II pitch mark — The Dent. This type of ball mark is found on relatively firm greens, after a “soft” landing golf shot. This type is easier to find and relatively easy to repair.

Most *USGA Green Section Record* articles tell a story while informing readers about new and oftentimes better ways to maintain and manage golf course turfgrass. This article is an exception. It asks more questions than it answers. Its purpose is to make the point that, perhaps, your putting greens are “talking to you” via the pitch marks sadly left unrepaired by golfers. In some small way, an unrepaired ball mark tells a story.

The USGA Green Section is bringing to the field a device to measure putting green firmness. The use of this device will no doubt spark a debate and interest in measuring the firmness of greens and, to a lesser extent, bunker sands. History will determine if the USGA TruFirm™ device will be as misunderstood or as controversial as the Stimpmeter.® Hopefully not. Nonetheless, to the turf manager who walks on greens every day and to the golfer who plays shots to a green, putting green firmness is an important issue.

This article will be an attempt to assist the golf course superintendent and the golf community in determining a quick, simple, and inexpensive way to determine the firmness of greens. This tool already exists in the ball mark repair tool.

Many years ago I began to realize that grass talks to you in many different ways. Clearly, there is a huge difference between yellow, chlorotic turfgrass and lush, dark green grass. Classically, this is the difference between under-fertilized hungry grass and over-fertilized, lush turf. Equally, when moss exists on a green, it could be an indicator of mowing too close, too much thatch, too much irrigation, and maybe too little nitrogen fertilizer. The list goes on.

Consider the common everyday ball mark. Although not as precise as the TruFirm or various moisture meters, a simple look at ball marks can help determine how soft, firm, wet, or dry a green may be.

DIFFERENT TYPES OF BALL MARKS

In my opinion, there are basically four different types of pitch marks. Obviously, there are varia-

tions between and within the different types. It could be argued that no two ball marks are the same, however, for the purposes of this article, the discussion focuses on four basic categories of pitch marks.

● **Type I — The Bruise.** Type I pitch marks leave only a bruise on the surface of the green. This type of ball mark is difficult to locate, and when found it is a cinch to fix. Firm greens tend to have Type I ball marks whether they are sand-based greens or older greens modified by years of core aeration and sand topdressing. This type of pitch mark also is common on the classic links style of management for golf courses in England, Ireland, and Scotland (and elsewhere around the world). Better golfers tend to want this type of firmness, but it could be the most difficult type to achieve and maintain for long periods of time. Type I firmness is best for major championship preparation and play.

● **Type II — The Dent.** Pitch marks of this style are your average ball mark. It is a dent or shallow depression left on the surface of the green. Type II ball marks are easy to locate if you go looking for them, as indeed you should look for *all ball marks*. It's a bit more challenging to repair and, if improperly repaired, or worse yet, left unrepaired, can be a slow-to-heal blemish on the putting green that takes weeks to heal.

● **Type III — The Pit.** Pitch marks of this type are deep impacts that leave an easy-to-see crater on the green. The pit type must be more carefully repaired. It takes some expertise and time to push the grass back into the crater. You never want to lift from the bottom; while this may smooth the surface of the green, it leaves an area of bare soil that is even slower to heal than a Type II ball mark.

With this type of ball mark the turf manager should begin to ask questions. Are my greens too wet due to rainfall or irrigation? Do I need to better control my thatch? When golf shots begin to leave this type of ball mark, a red flag should wave.

● **Type IV — The Skid Mark.** This type of pitch mark is the worst type of ball mark. The term for this type of pitch mark was picked up during Green Section TAS visits with turf managers who were concerned with this type of ball mark on their greens. Instead of a golf ball leaving a bruise, dent, or pit, this ball mark can have a chunk of grass torn from it. It is the largest ball

mark. It is the one most difficult to repair and it takes the longest time to recover.

As with the Type III pitch mark mentioned above, when this ball mark is seen on a green, the green is definitely talking to you. Finding the answer on what to do will be discussed next.

WHAT DOES ALL THIS MEAN?

In simple terms, the type of ball mark left after play could be your best indicator of how the greens are being managed or even how they are designed. Are they too wet? Are they too thatchy? Are they being aerated and topdressed enough? Are the greens too contoured? Is turf-grass density being maintained with a good fertilizer program or are they not fertilized enough? Obviously, all these factors and more can have a huge impact on turf density and the type of ball mark that results and the speed at which it recovers.



Nonetheless, the simple ball mark can also be an important indicator for the turf manager to consider these points:

● Are your greens too wet? Are you in an irrigation rut of regularly scheduled 10–15 minutes of irrigation each night to replace water used and lost during the day? Is it raining too much? Are the greens pocketed with poor air circulation that slows evaporation? Do trees need to be removed or underbrush cleared? Do you need to install a fan? Do older greens need supplemental

A Type III pitch mark — The Pit. This is one of the easiest ball marks to find, one of the slowest to heal due to its size, and the first ball mark type that begins to suggest that a green is soft.

internal drainage? Do older greens need to be rebuilt because they lack drainage, stay too wet, and have unreliable turfgrass?

- Are you hand watering enough? Are you relying on perimeter overhead irrigation systems as the primary way to water greens? Remember, perimeter full-circle or part-circle irrigation heads, by the very nature of their placement, tend to over-water the centers of greens.
- How is the thatch zone in the greens? Is it a mat or is it intermixed with topdressing? Is it



A Type IV pitch mark — The Skid Mark. This is perhaps the worst type to see on a green. It is the largest and most difficult to repair and thus the ball mark of most concern.

holding water? Can you squeeze water from the thatch zone? Organic matter acts like a sponge, holding excess water on the surface of the green, where it is needed the least. When *was* the last time the greens were dethatched?

- Are the greens well aerated? Are they being aerated enough? Are you using the best tine size or are you compromising putting green aeration due to golfer, management, or golf shop pressures? Under-aerated greens tend to have more thatch and surface compaction, which restricts drainage. The roots of the grass can also be shallower, requiring more frequent irrigation. These are all bad situations if you're trying to achieve firm putting greens.
- Are you topdressing the greens enough? Are you using enough sand per green per year? Are you compromising the amount of topdressing applied to save time and money on both materials and mower maintenance, and in order to keep your mechanic from finding another job?

• Are there other factors influencing the greens? How is your water quality? Is it time to flush your greens? What is your wetting agent program (if any)? Are you using the proper wetting agent chemistry, or are you overusing wetting agents? Some wetting agent chemistries, by their very nature, tend to hold water in the thatch zone. While this makes them excellent materials for wetting the soil, their improper use can complicate the situation.

• How are your greens designed? Sand-based greens having abrupt contour changes can inherently have bad water movement and water retention characteristics. That is, a low swale can stay wet, regardless of how a green is irrigated, whereas a ridge or a mound only a few yards away stays dry. *Sand-based greens do not necessarily drain uniformly.* The design and contour of a green can affect the type of ball mark, independent of the best efforts of a golf course superintendent.

• How are your greens doing . . . really? What type of complaints or compliments are you receiving from golfers? Are the greens holding? Are they not holding? The type of complaints can be telling. A better golfer tends to like a firmer green, whereas higher-handicapped golfers tend to like greens that hold any shot hit into them, with any club, at any trajectory, and with any spin. There are many factors that determine the type of ball mark on a green.

BE PROACTIVE

Use the type of pitch mark you have on your greens to your advantage. If you formerly had Type I ball marks and the greens are now showing more Type II or, worse yet, Type III and IVs, show the pro, the green chairman, the owner; show anyone who will listen. "Look, the greens are getting too soft. We need to topdress more, core more, install internal drainage in the greens, etc., etc., etc." I submit that golfers understand ball marks better than we might expect. After all, they walk on each green every day they play. They lament non-repaired or poorly repaired ball marks and the blemishes to the putting surface that result.

They also know the difference between firm greens, where it is difficult to even find where a ball hit the green, and severely ball-marked greens that just look bad and play badly. Golfers know when something is wrong. Use this to your advantage.



DISCLAIMER

This article is a huge oversimplification of a very complex topic. Obviously, the weather has a huge impact on putting green softness and firmness. The type of golf shot hit into a green also has a huge impact on the resulting ball mark. After all, there are tremendous differences with the spin of the ball, its trajectory to the green, and even the slope and contour of a green when the ball impact occurs. Obviously, a green sloped towards the fairway and a green sloped away from the incoming shot can have different types of ball marks. How the greens are maintained, the budget, and *how golfers want their course maintained* are all important factors that can affect the type of ball mark that results from play.

IN CONCLUSION

This article asks more questions than it answers. The simple ball mark can be an important maintenance and management tool in determining short-term as well as long-term care of the greens, along with the weather. Perhaps there could be no more simple education tool than to understand what the greens are saying. Quite literally, they are *talking* to you, and it would be best to listen.

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A non-repaired ball mark. Note the wilted grass. Regardless of the ball mark type, a non-repaired pitch mark is bad for the grass and bad etiquette. Always repair your ball marks, regardless of their type.