Inevitably, the comparison of putting green conditions between rival clubs is a topic of conversation on many of our USGA Turfgrass Advisory Service visits. Clearly explaining why the putting greens perform or don’t perform at a golf course is not an easy conversation between an agronomist and a course official. The course official is searching for the one thing that makes a difference, while the agronomist must explain with gentleness and respect that there are many factors that contribute to the performance of a putting green.

Over the past few months, we have started using a new method to help explain putting green performance that seems to resonate with both course officials and superintendents. We call it the Putting Green Performance Pyramid. This is shown graphically in Figure 1. Take a moment to study it and return to reading the article.

Figure 1: The Putting Green Performance Pyramid
The Components

The Base

A pyramid is strong because it has a wide base. The higher a pyramid is to extend, the wider the base must be. For putting greens, the base is composed of numerous factors including (in no particular order):

- Sunlight and Air Movement
- Water Quality
- Soil Nutrient Status
- Disease Control
- Soil Born Pests
- Irrigation (Watering practices and system issues)
- Organic Matter
  - Core Aeration with topdressing to fill holes
  - Sand Topdressing (Quantity, Quality, and Frequency)
- Mowing Practices
- Winter Management Strategies (Bermudagrass putting greens)
- Summer Survival Strategies (Bentgrass)
- Construction Issues (Rootzone Quality, Drainage Issues, etc.)
- Size vs. Traffic Considerations
- Presence of Undesirable Species (Poa annua)
- Correct Turf Species Per Expectations
- Design Issues (Limited Cupping Area)
- Skill of the crew

When evaluating the performance of a set of putting greens, it is necessary to consider each of these factors. For putting greens to succeed year in and year out, all these considerations should be solid. If one or more are lacking, there are issues in the foundation of the pyramid that might limit the level to which the putting greens can be managed. Identifying these weak “bricks” in the base is an opportunity for the club to strengthen them.

Build Period

The term Build Period is used as it represents a focus on surface management practices designed to get the putting greens ready for a playing season. Once again, the broader the base, the higher the build period can be. In practical terms, this means that the putting greens can be elevated to a higher standard for a longer time because the core agronomic practices have produced a healthy base of turf.

Practices in the Build Period include

- Plant Growth Regulator Use
- Topdressing for Playability Improvements
- Canopy Management (Light vertical mowing, brushing, etc.)
- Irrigation Management (emphasis on playability)
• Increased Mowing Frequency or Lower Heights of Cut
• Mower Sharpness (Ability to maintain maximum mower sharpness)
• Rolling

Peak Period
This period refers to the highest point of the pyramid. Sometimes it is desirable or necessary to peak the putting greens for short durations for key events on the calendar. The peak period might last 7 to 14 days and is a condition not considered to be either economically or environmentally sustainable. Many golfers at home do not realize that the putting greens they see on TV each week are in the peak period while the putting greens at their home course may be in the build or even base period. When they see putting greens at their peak week in and week out, they may come to think that’s how all putting greens should play. Not true!

Practices in the Peak Period
• Higher PGR Rates
• Canopy Management (More frequent)
• Appropriate Nitrogen Restriction
• Increased Mowing Frequency
• Increased Rolling Frequency
• Hand Watering to Maximize Playability and Consistency

Conclusion
It is our intention that this article sparks conversation in your maintenance facility and clubhouse. We hope this framework may help you explain why your putting greens perform the way they do. The practices listed under Base, Build and Peak Periods are not intended to be all inclusive. If we have left anything out, feel free to email us and we will improve the pyramid. We would love to hear from you.

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