

When It Comes To Turf Quality, Ask Those Closest To It.



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– Tessie, Superintendent
Ryan Bancroft's daily visitor



Ryan Bancroft has applied slow-release Nutralene® at Oregon's Salishan Golf Resort for eight years and loves the results. So does Tessie, a member's Border Collie that walks the course every day. "The golfers are really happy, too," Ryan says, "because the course is consistently green."

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QUICK TIP

Proper timing in applying nutrients to turfgrass is partially based on optimum temperatures necessary for growth. Optimum temperature ranges for cool- and warm-season turfgrasses are recognized and accepted in the industry. When visualizing a graph that measures the air or soil temperatures for an entire year, the data results in a bell-shaped curve. In North America, we observe cool temperatures in the beginning of the year and hot temperatures somewhere in the middle. Growth stages for both cool- and warm-season turfgrasses differ depending on temperature — and it's important to observe temperatures and feed plants accordingly. When temperatures are outside the optimum growth range of the plant, applications of fertilizers are inefficiently utilized.

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mineralizing, nitrifying and denitrifying). These bacteria are usually dominant in agricultural ecosystems and prairies.

- Saprophytic fungi (SF) are important for breaking down plant material and other organic matter. These fungi typically dominate forest and other ecosystems that produce large amounts of relatively recalcitrant materials.

- Arbuscular mycorrhizal fungi (AMF) form symbiotic relationships with plants and trade water and nutrients (especially phosphorus) for carbon-containing compounds made by the host plant.

- Total biomass is the sum of all these functional groups plus all the additional microorganisms that did not fit into one of the above functional group categories. Very little is known about the function of these uncategorized species.

The turfgrass sites were found to be bacterially dominated and particularly abundant in gram positive bacteria — the stress tolerators. This result confirmed what Karp and Nelson (2004) found for soil (push-up) putting greens. The relative dominance of gram positive bacteria is somewhat unique to turfgrass. Typically, this level of community dominance by gram positive bacteria is found in extreme climates. Previous research on the microbial diversity of prairies found that arbuscular mycorrhizal fungi dominate prairies followed by gram negative bacteria.

The turfgrass soils tested had a wide range in physical and chemical properties. Bulk density ranged from 0.7 grams per cubic centimeter (g/cm³) to 1.4 g/cm³, organic matter from 2 percent to 18 percent, and there was a great diversity of soil texture as shown by the large ranges in sand and clay content of the soils. Regression analysis was performed to see how the microbial functional groups were affected by soil properties. Soil texture, organic matter, bulk density and soil pH had very little effect on the individual functional groups and the total microbial biomass.

However, of the functional groups, saprophytic fungi were most sensitive to changes in soil properties and were found to increase in abundance as organic matter increased, and decrease in abundance as clay content

increased. The gram positive bacteria also increased in abundance with increasing organic matter, although the relationship between these two variables was fairly weak. While no strong linear correlations were found among functional groups and soil properties, a statistical technique known as principle component analysis discovered some significant interactions between the microbial community and soil properties. Principle component analysis can be thought of as a diversity index, which determines a unique fingerprint for each microbial community. In short, the results from this analysis confirm that microbial communities are indeed influenced by the properties of their soil habitats, although the differences do not break down as simply as the above mentioned functional groups.

The results of this research serve somewhat as a census of the microbial community in turfgrass systems, defining the species demographic and the corresponding labor force of the population as well as the influence of soil properties.

While this research does not directly suggest how these population dynamics can improve turf quality, it provides a starting point to move that direction.

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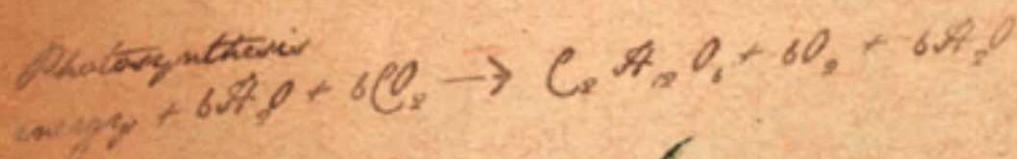
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H-O-R-S-I-N-G Around

Certain on-course experiences resonate with golfers in transcendent ways. There is the free-swinging, late-afternoon round with just a couple of golf clubs and not a care in the world. And the buddies trip filled with laughs, friendly wagers and no shortage of trash talking. Or the chance to play somewhere new and to imagine a version of the game never before experienced.

In these lean economic times, the golf industry should look for everything it can to bring out the beauty and recreational pleasures of the sport. While we can't send everyone on a buddies trip to some new or special place or ensure romantic lighting every afternoon on a wide-open course, there are little ways we can re-imagine the game to rekindle the connection so many have made during those transcendent experiences.

My recommendation: H-O-R-S-E golf.

Anyone who picked up a basketball in his or her youth was exposed to H-O-R-S-E. If not, my apologies and a brief explanation about the game. It goes something like this: at least two players (but more if you'd like) take turns trying to out-imagine one another in a fun shootout.

Match play — with a basketball.

Say you have a game with two combatants. Player "Hogan" wins the honor in a coin toss and can shoot from anywhere on the court.

If Hogan makes the shot, then player "Snead" must make the same shot from the same position. If Snead

THE GOLF INDUSTRY SHOULD LOOK FOR EVERYTHING IT CAN DO TO BRING OUT THE SPORT'S RECREATIONAL PLEASURES

BY GEOFF SHACKELFORD



misses, he receives "H" from the word H-O-R-S-E.

However, if Hogan misses his original shot, then Snead is free to choose a shot and Hogan must duplicate the feat. In this version of basketball match play, the contestants go back and forth until one loses when he's picked up all the letters in H-O-R-S-E.

The real fun in H-O-R-S-E comes from imagining wild and weird shots. And that's something seriously missing in modern golf, which takes itself way too seriously at the expense of fun, quirk and cool.

That's where H-O-R-S-E golf comes in.

While match play is a wonderful format used extensively in the everyday playing of golf, why not try spicing things up and use the tenets of H-O-R-S-E to rekindle the imaginative, childlike qualities of the game that endeared so many of us to golf in the first place?

Flip a coin, head to the tee and play a match with a friend where the player with the honor decides what tee you play from. If you want to take things a step further, dictate what club to use from the tee.

Maybe a short knocker takes advantage of the honor to dictate a

5-iron from the tee at a reachable par 5, neutralizing his longer opponent's strength while theoretically helping his own cause. Play until you've accumulated H-O-R-S-E or just use traditional match-play scoring.

Now, I know what most golf course superintendents and operators are already thinking: We don't need golfers jumping around to various tees. However, topping the list of golfer neuroses (after slow play) is their choice for tees they play. Nearly all are playing tees that are too far back.

As for traffic in places where you don't want it, most courses still have several tees that are overworked even with play down. So what if a couple of long-knocking flatbellies tee off from a forward tee in the heat of a H-O-R-S-E match?

Handicapping junkies are surely typing out an e-mail suggesting that such a match is tainted and therefore not suitable for posting to maintain an index. I say stuff it! The restrictions and oddities of handicapping have done as much damage as good to the game.

It's time to have some F-U-N.

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