Tools of the trade.

OM246

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The first draft of this article was set up to be over 3000 words, but only because there is so much valuable information that must be shared when it comes to the topic of OM246. Nothing could be left out! The people must know! Luckily, there's a limit on how long these articles can be, and that led me here. Scrapped it, regrouped, and got back to the basics.

HERE IS OM246, STRAIGHT TO THE POINT

- **Turf managers in New Zealand and the United Kingdom have been utilizing this method of testing for some time.** But it wasn't until a conversation between Dr. Micah Woods of the Asian Turfgrass Center and Chris Tritabaugh, Golf Course Superintendent at Hazeltine National Golf Club, that the term "OM246" was born.
- **This is a very different process from traditional organic matter testing.** OM246 refers to the total organic material measured at three distinct depths: 0 to 2 cm (2), 2 to 4 cm (4), and 4 to 6 cm (6), whereas standard soil tests for organic matter take a sample at a depth of up to 10 cm.
- **See how I did that?** Let's refer to soil organic matter and total organic material as two different things.
- **Here's the difference:** The value received for organic matter on a typical soil nutrient test excludes thatch, mat, stems, and roots.
- **As a matter of fact,** the Soil Science Society of America's Glossary of Terms defines soil organic matter as "the organic fraction of the soil exclusive of undecayed plant and animal residues."
- **Screened and binned.** During the standard process, the sample is first passed through a 2mm sieve, removing the bulk of any living and dead undecomposed plant material, and then a portion of what remains is tested for organic matter
- **What we're used to.** This typically results in a value of less than 2% (20g per kg of soil) and is a number that many would be used to seeing on a report and identifying as their organic matter percentage.
- **This would be more of a test of humus.** Which is certainly still valuable, as it can be utilized to identify the soil's nutrient and water holding capacity, estimate nitrogen mineralization, and determine the contribution of present organic matter to the soil's cation exchange capacity.
- **Dr. Micah Woods.** Defines OM246 as "the measurement by mass loss on ignition of organic material in a soil sample that has not passed through a sieve."
- **Waste not.** To get an accurate representation of what is present at the top of the root zone, where the ball reacts, and where it really matters, you must measure everything.
- **Up top.** There is a significantly higher percentage of organic material closer to the soil surface compared to what exists deeper in the profile, so it makes sense for us to measure and make decisions based on the values at these depths, specifically at 0-2 cm.

SAMPLING PROCESS

- **How many?** For an 18-hole property, it is typically recommended that at least three greens are tested at the 0-2, 2-4, and 4-6 cm depth, taking five sub-samples from each green, and then an additional three greens are tested at the 0-2 cm depth, resulting in twelve total samples.

SAMPLE LOCATION:			
NBR	FIELD	DESCRIPTION	OM 440 As Rcvd (%)
070	#5 GRN	0-2 CM	5.87
071	#5 GRN	2-4 CM	2.43
072	#5 GRN	4-6 CM	2.90
073	#10 GRN	0-2 CM	7.25
074	#10 GRN	2-4 CM	2.60
075	#10 GRN	4-6 CM	2.68
076	#18 GRN	0-2 CM	6.84
077	#18 GRN	2-4 CM	2.77
078	#18 GRN	4-6 CM	3.19

Sample report –The results of your OM246 testing will look something like this.

- **Get this ultimate set of tools.** You will need a soil profiler or sampler, a clipboard marked at three depths, a knife, labeled bags for the samples, and material to fill the sample holes (plugs or sand).
- **How much?** We are looking for a minimum of 30 cm3 of sample material, but not exceeding 150 cm3.
- **Where to cut?** It is important that the 0–2 cm portion of the sample be cut at the soil surface where the grass and soil meet; 0 cm is considered the top of the soil.
- **Dry em' out.** Following extraction, the samples must be air dried, which will stop microbial activity and therefore reduce the potential for any decomposition of organic material while shipping.
- **Fall is best of all.** It is recommended to test in the autumn, as it considers most of the accumulation, growth, removal, dilution, and decomposition from the year prior.
- **How often?** Annually, preferably at the same time every year.
- **Do you have a permit for that?** Shipping soil can be tricky if you are not using a local lab, so utilize your certified agronomist or the Asian Turfgrass Center to ensure your ducks are in a row with the entire OM246 process.

AT THE LAB AND TEST RESULTS

- **Use it up; use it all up.** 100% of the sample is tested at the lab exactly as received, in its entirety, and with the verdure still on.
- **Burn, baby, burn.** 360˚C in a muffle furnace is a conventional burn temperature for soil organic matter testing; however, 440˚C is preferred as it results in complete ashing of the sample.
- **What's left?** The soil and sand components of the sample will remain the same mass, but the organic material will have burned away to a white ash, resulting in the mass lost on ignition.
- **On your physical analysis report.** This will be reported as a percentage—the mass of organic material per mass of soil.

Air drying the samples following extraction is necessary to stop microbial activity but it also reduces shipping costs. Score!

- **For example.** A report showing a 0–2 cm value of 6.24% means there is 62.4 g of organic material per 1 kg of sample.

OK, NOW WHAT?

- **Getting your feet wet.** It is important to be patient during year one of the process because, although you now have this data, it can be difficult to quantify the results until your next sample results arrive.
- **Through ATC.** In the reports Dr. Woods provides, he will show how your total organic material percentages stack up against those from greens of a similar turf composition.
- **BUT!** Fight the urge to make comparisons; it is not apples to apples, and decisions should not be made solely based on the results of others.
- **G2G.** It is also valuable to look at how the total organic material percentage changes from green to green on your property and the effects of different microclimates and growing conditions.
- **Where it really pays off.** Is observing how the total organic

material changes over time—is it going up, going down, or staying the same?

- **And then?** One can properly assess if the maintenance work that has been done to influence the organic material percentage has been adequate, not enough, or too much.
- **You should know.** How much topdressing sand and nitrogen has been applied, how the grass was grown by collecting clipping volume, and how much surface disruption (aeration, verticutting, etc.) occurred between sampling dates and in what capacity.
- **Don't forget to measure the surface performance!** OM246 is just one piece of the puzzle; ensure you are collecting performance data such as green speeds, measures of smoothness and trueness, firmness, and VWC.
- **Easy there.** Remember, the more grass you grow up top, the more you grow down below; keep your growth rate in check, and the organic material accumulation will be less.
- **Where you at?** Over time, one will be able to really dial in the conditions they desire, first by identifying what those conditions are and then adjusting the work appropriately to achieve the best surfaces possible for the greatest number of days in the season.

BITS AND BOBS

- **OM gets a bad rap.** But it has been observed that the better-performing, heathier greens on a property contained the highest levels of OM at the 0-2 cm depth, and the greens that tended to struggle and were considered the weaker, higher-maintenance surfaces had the lowest levels of OM.
- **So, what are you saying?** This shows us that the poorest turf growth is occurring in soils with the lowest organic material, so maybe we need to think differently.
- **How low can you go?** We've always thought that the lower we can get this number, the better, and we base our maintenance practices around this idea.
- **Instead.** Try looking at it like this: how much organic material is tolerable while still producing the desired playing conditions, not how little.
- **For the record.** In no way am I suggesting jacking these numbers up to make the greens better; instead, utilize this testing to find your site-specific optimum level of OM and manage the surfaces in a way that can keep you there.
- **Target practice.** It is important to remember that there is no "target" or ideal total organic material percentage; what is sufficient at one property will be completely different from another golf course nearby or surfaces of the same composition.
- **We are not all the same.** Great putting surfaces have been observed at 5%, and at 15% organic material - there is no right or wrong number; the key is finding what's best for your site.

"What is the ultimate goal with OM246 testing? Maximizing putting green performance and achieving the desired conditions for your site while minimizing disruptive practices."

There are loads of other goodies we could dig into, but for the purpose of this article, I think you get the point. Whether you are utilizing your local agronomist, Dr. Micah Woods of the Asian Turfgrass Center, the STRI, NZSTI, or USGA, give it a shot. I haven't heard of a case where one did not find immense value in this type of testing and all that comes with it. Let's end with this: what is the ultimate goal with OM246 testing? Maximizing putting green performance and achieving the desired conditions for your site while minimizing disruptive practices that may not be necessary in the capacity or frequency that they are currently being performed. That would be this working very well, I'd say. ■