

# Total organic material (TOM) and soil organic matter (SOM) and how to manage them

---

Micah Woods

12 November 2025

Asian Turfgrass Center

[www.asianturfgrass.com](http://www.asianturfgrass.com)

PACE Turf

[www.paceturf.org](http://www.paceturf.org)

Introduction to Plant Physiology

Weeds of the South

TURFGRASS  
science and culture

Environmental  
Chemistry of Soils

TURFGRASS

Practical Turfgrass Management

Soil Nutrient Availability

Solar Engineering of  
Thermal Processes

Mineral Nutrition  
of Higher Plants

Turfgrass Soil Fertility and Chemical Problems

Soil Fertility and Fertilizers

C. E. HUBBARD GRASSES

TURFGRASS DISEASES

WATER CHEMISTRY

WATER RELATIONS  
OF PLANTS AND SOILS

SOILS OF THE TROPICS

Color Atlas of Turfgrass Weeds

# Soil OM management goals

---







Measure total organic material  
(OM246)

---



0 to 0.8  
inches

0 to 2 cm  
OM2

0.8 to 1.6  
inches

2 to 4 cm  
OM4

1.6 to 2.4  
inches

4 to 6 cm  
OM6



# The definition of soil organic matter

**soil organic matter:** The organic fraction of the soil exclusive of undecayed plant and animal residues. See also humus.

**humus:** the well decomposed, more or less stable part of the organic matter in mineral soils.

# Total organic material

**total organic material:** organic material in a soil sample that has not passed through a sieve. This test is conducted on the sample as it is received at the laboratory, with no removal of living or dead plant material prior to testing.



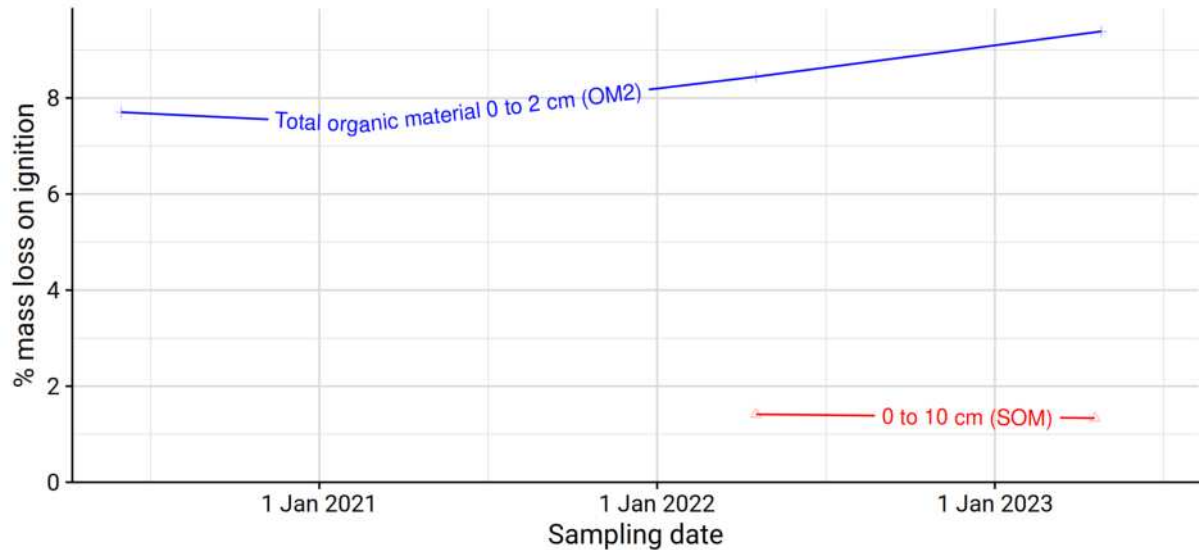






# Poa annua putting greens

samples from Chambers Bay GC

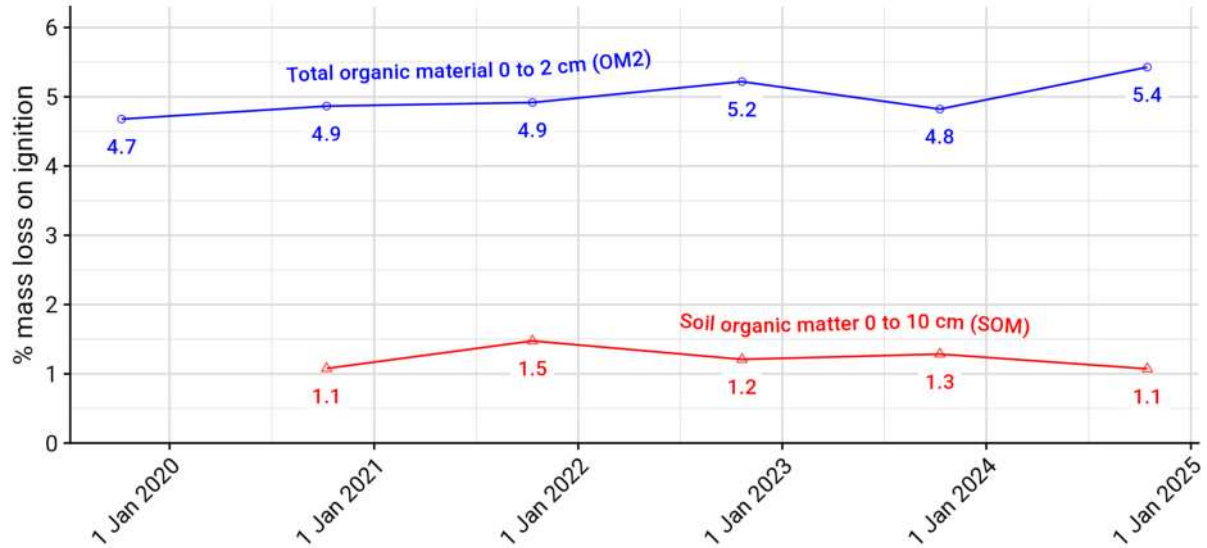


All soil tests conducted at Brookside Labs



# Creeping bentgrass putting greens

samples from Hazeltine National GC

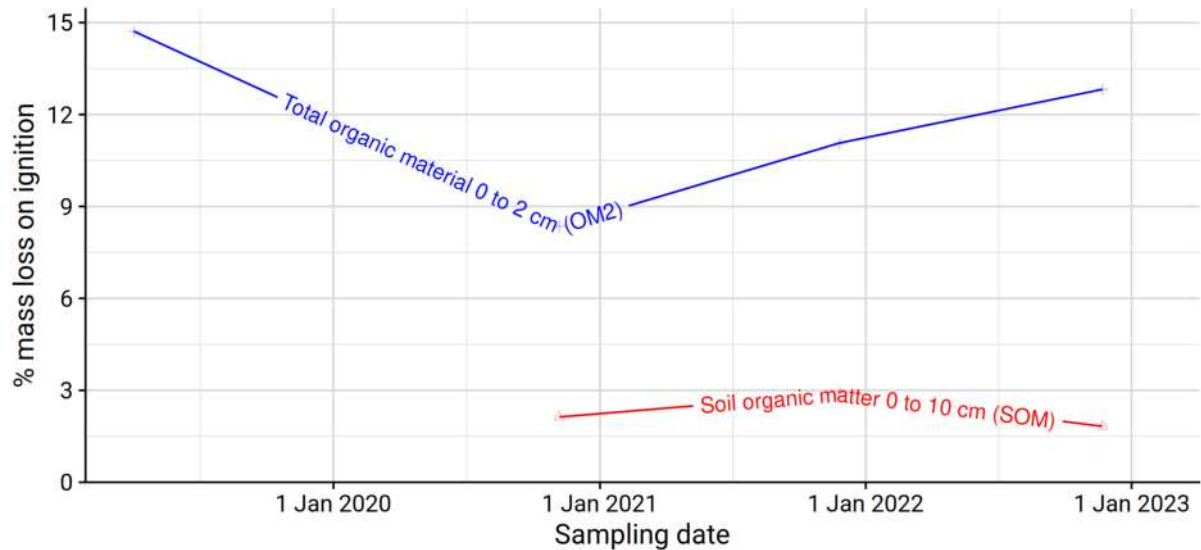


All soil tests conducted at Brookside Labs



# Tifeagle putting greens

samples from Bangsai CC



All soil tests conducted at Brookside Labs

# Estimated nitrogen (N) mineralization

1.8 g (0.36 lbs) annual total based on site-specific temperatures & a starting OM of 2%.



Calculated using temperatures from Copenhagen, Denmark

Depth of soil  
layer (cm)

Starting OM %

Ending OM %

Date range (starting OM% & ending  
OM%)

to

Sand added  
(mm)

If you have applied 4 mm of sand to a 2 cm layer of the rootzone with a starting OM of 8% on 2024-02-03 and ending OM of 8% on 2025-02-03, the total organic material accumulation rate is:

**21.62 grams per kg of soil per year**



# At the laboratory



Brookside Laboratories, Ohio, USA







Soil organic matter crucibles



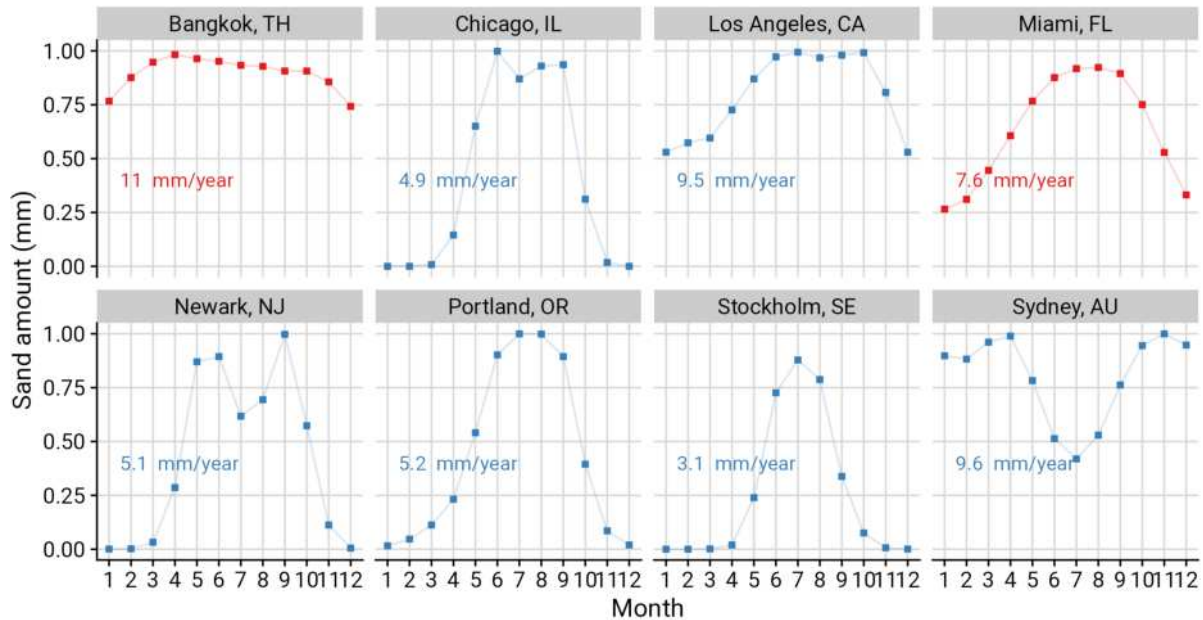
Total organic material (OM246) crucibles

Know the sand application rate

---



# Temperature-based growth potential prediction of sand topdressing



$$1 \text{ mm} \approx 320 \text{ lbs}/1,000 \text{ ft}^2$$

$$1 \text{ mm} \approx 3.3 \text{ ft}^3/1,000 \text{ ft}^2$$

$$1 \text{ mm} \approx 16 \text{ tons/ha}$$

[www.asianturfgrass.com](http://www.asianturfgrass.com)

[www.paceturf.org](http://www.paceturf.org)

