

Microbiometer Test Results for Microbial Biomass Carbon (MBC)

Penn State University Park Forest Resources Building Green Roof medium*, sampled Oct 26, 2020

Samples all taken near clumps of blue fescue, avoiding moss cover. Soil corer was pushed as far as it would go to obtain 5-cm wide core. Five cores were combined in one bag. Depth of each sample hole was measured in inches and converted to cm. Microbiometer analyses performed on samples passing through sieve provided with kit. Subsample of sieved medium was used for gravimetric moisture content (GMC) measurement.

Sample	Depths in centimeters	Mean depth, cm	Microbiometer $\mu\text{g MBC g}^{-1}$ soil	GMC	Fungal: bacterial ratio %fungi:%bacteria
Intensive East	9.84, 9.84, 10.8, 16.51, 12.07	11.81	251	0.50	0.5:1 32% F 68% B
Intensive Mid	26.04, 24.45, 25.08, 26.04, 27.04	25.73	286	0.11	0.5:1 35%F 65% B
Intensive West	16.83, 17.78, 15.56, 17.15, 16.19	16.70	223	0.55	0.4:1 30% F 70% B
Extensive East	7.94, 9.52, 8.26, 8.57, 7.94	8.45	253	0.50	0.5:1 32% F 68% B
Extensive Mid	9.52, 11.43, 11.43, 12.06, 9.84	10.86	111	0.24	0.6:1 39% F 61% B
Extensive West	8.26, 8.89, 9.52, 11.11, 10.8	9.72	114	--	0.6:1 39%F 61% B

*Original green roof medium consisted of a mix of compost and expanded vermiculite. Original depths of rooting medium were 12 inches and 4 inches, respectively, in 2010. In 2020, the average depth (15 measurements) in Intensive section (inches was 7.1 inches). In extensive, average was 3.8 inches.

Findings: MBC tended to be higher when rooting medium was deeper, likely explained by denser and longer-lived roots in the deeper medium. Fungal portion of soil community (60-70%) was fairly similar with depth.

