Chapter 1

Soil Microbiology, Ecology, and Biochemistry: An Exciting Present and Great Future Built on Basic Knowledge and Unifying Concepts

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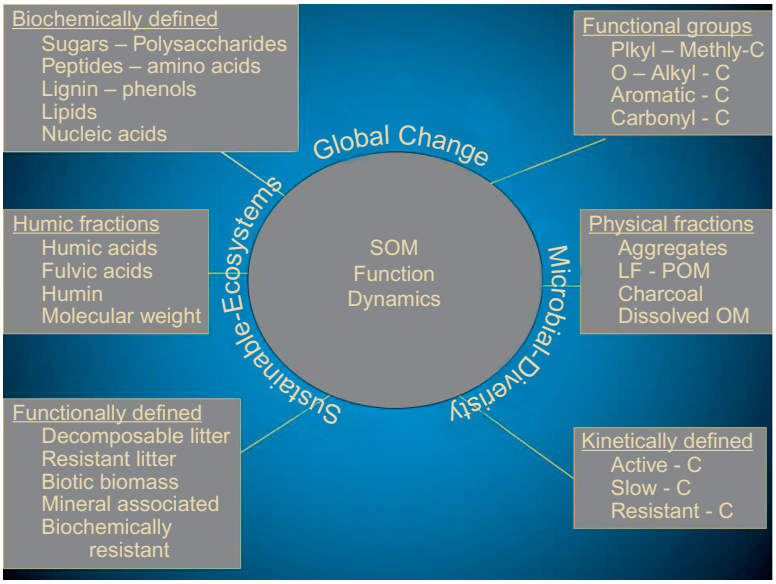

FIG. S1.1 The approaches used in studying soil organic matter dynamics relative to microbial diversity, sustainable ecosystems, and global change, are related to available instrumentation and the questions asked. Modern automated techniques have greatly aided such studies in recent years.

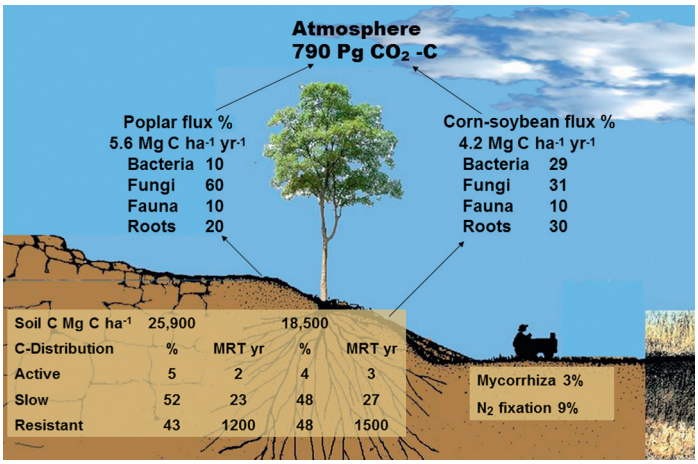

FIG. S1.2 Soil organic matter pools for the 0–25 cm depth for a poplar plantation and corn-soybean rotation at KBS-LTER, MI. The kinetically-determined pools using ^{14}C dating, ^{13}C studies, and long-term incubation show a small active pool, but a large slow pool, of the SOC. The C fluxes to the atmosphere through bacteria, fungi, fauna, and roots, expressed as a fraction of the annual flux, are higher for bacteria in the corn-soybean rotation. More fungi are involved in the poplar rotation with both AMF and EM fungal symbionts, but the mycorrhizal symbionts do not require as much photosynthate as the N-fixing bacteria of the soybeans.