



Fig. S4 Soil microbial metabolism under different rain treatments.

(a) Soil microbial metabolism patterns based on carbon source utilization efficiency. Bray-Curtis distances were calculated from the well color development in Biolog microplates for Principal Component Analysis (PCA). (b) Soil microbial metabolic activity under different rain treatments with or without *E. coli* O157:H7 invasion. Asterisks indicate significant differences between treatments ($p \leq 0.05$).