

# Supplementary Material

**Table S1.** Statistical test of the effects of different research sites, season, and their interactions on soil water content and soil microbial biomass based on two-factor AVOVA.

Index	Site	Season	Site × Season
Soil water content	<0.001	<0.001	0.014
MBC	<0.001	0.001	0.573
MBN	<0.001	<0.001	0.421

**Table S2.** Statistical test of the effects of research sites, season, and their interactions on absolute abundance of PLFAs (nmol g<sup>-1</sup> soil), ratios of F/B and G+/G- in November 2016 and June 2017.

Source	The Absolute Abundances of PLFAs (nmol g <sup>-1</sup> soil)						
	B	G+	G-	F	Total PLFAs	F/B	G+/G-
Site	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.100
Season	0.026	0.051	0.001	0.026	0.009	0.108	0.147
Site × Season	0.099	0.183	0.014	0.025	0.155	<0.001	<0.001

**Table S3.** Statistical test of the effects of research site, season, and their interactions on relative abundances PLFAs (mol %) in November 2016 and June 2017.

Source	The Relative Abundances PLFAs (mol %)					
	B	G+	G-	F	ACT	AMF
Site	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Season	<0.001	<0.001	0.256	<0.001	<0.001	0.008
Site × Season	<0.001	<0.001	0.731	<0.001	<0.001	0.829