

Supplementary information

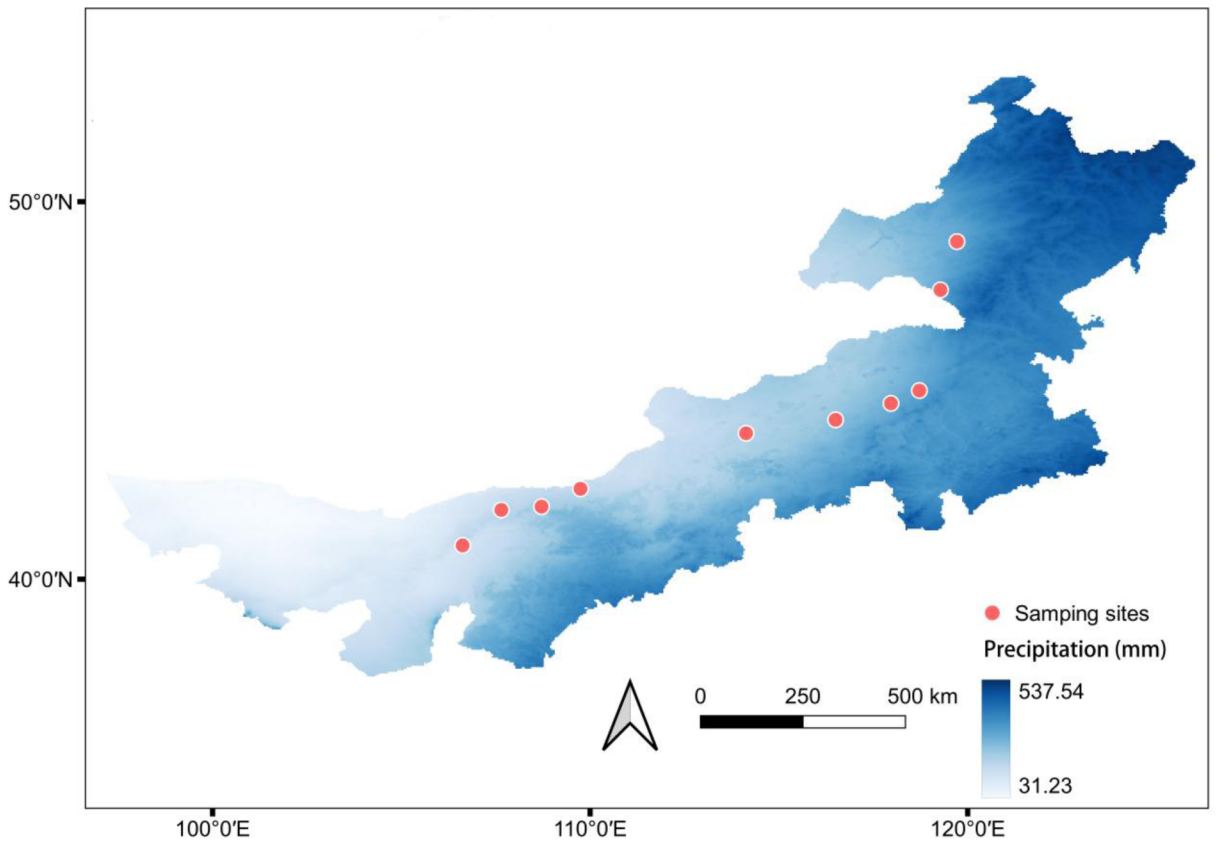


Figure S1 Geographic distributions of 10 sampling sites along the 2000-km grassland transect in Inner Mongolia, China .

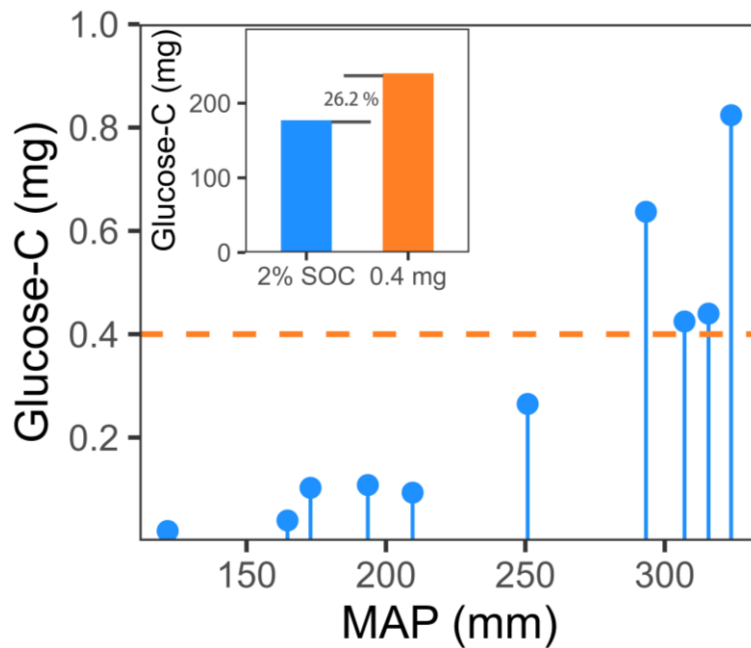


Figure S2 The amount of glucose added at each sampling site. The lollipop graph represents the glucose was added at glucose-C=2% SOC per gram of soil. The red dashed line represents the glucose was uniformly added at 0.4 mg glucose-C g⁻¹ soil. The inset bar plot shows the total amount of glucose added under the two glucose addition methods, and the rate of 0.4 mg glucose-C g⁻¹ soil added resulted in 26.2% more glucose added than the rate of glucose-C=2% SOC across the 10 sites. 2% SOC: glucose was added at glucose-C=2% SOC; 0.4 mg: glucose was added at 0.4 mg glucose-C g⁻¹ soil; MAP, mean annual precipitation.

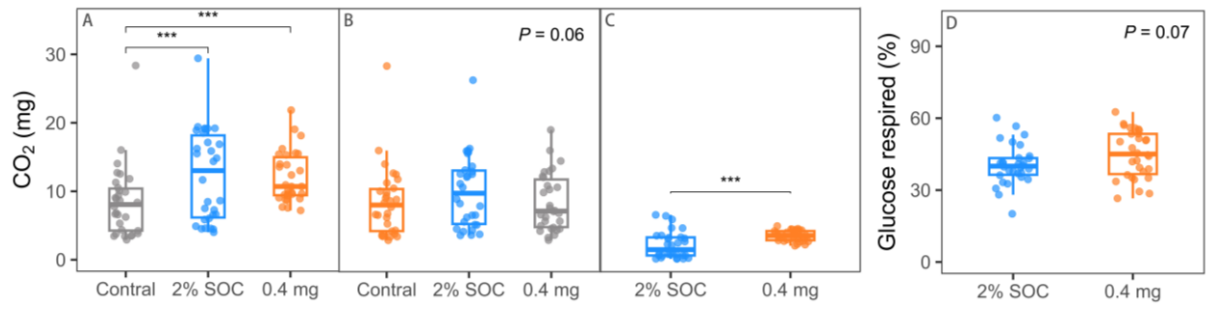


Figure S3 Comparison of total microbial respiration (A), SOM derived CO₂ (B) and glucose derived CO₂ (C) among Control (add deionized water), 2% SOC (add glucose at glucose-C=2% SOC) and 0.4 mg (add glucose at 0.4 mg glucose-C g⁻¹ soil). Comparison of glucose respired (% of added glucose) between glucose addition at 2% SOC and 0.4 mg (D).

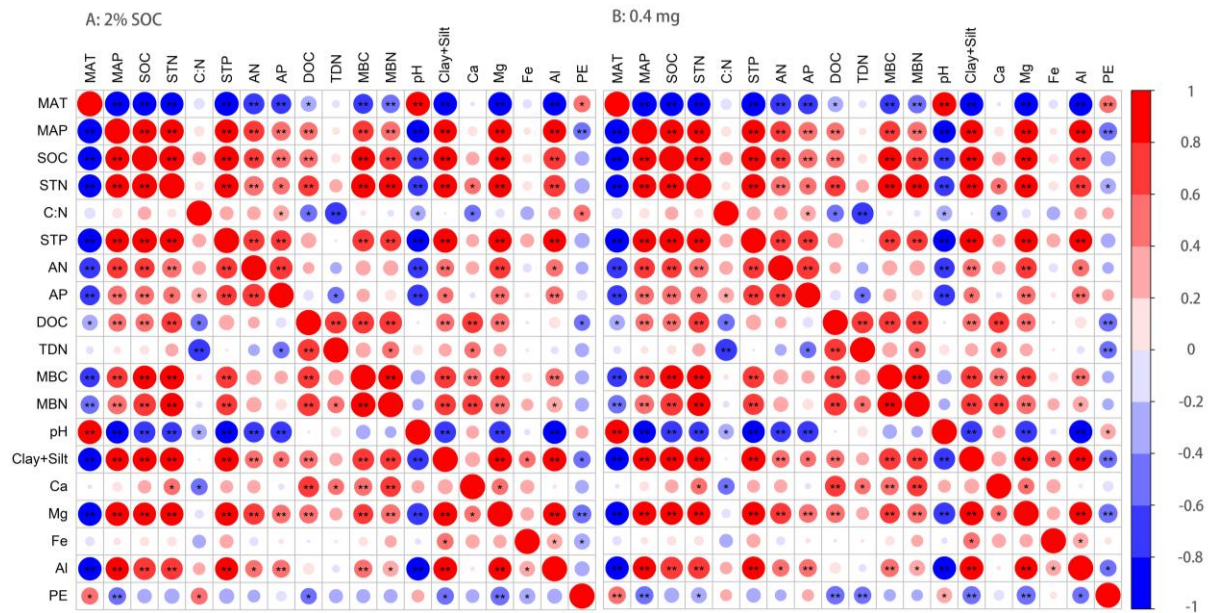


Figure S4 Correlation among priming effect, climate factors and soil properties. MAP, mean annual precipitation; MAT, mean annual temperature; SOC, soil organic carbon; STN, soil total nitrogen; STP, soil total phosphorus; AN, available nitrogen; AP, available phosphorus; DOC, dissolved organic carbon; TDN, total dissolved nitrogen; PE, priming effect. Ca and Mg represents exchangeable Ca and Mg, respectively. Fe and Al represent free Fe and Al oxides, respectively.