

Figure S1. Monthly precipitation at the study site in 2020 (bars) and average monthly temperature in 2020 (black line and points). Meteorological data were obtained using a small weather station (RS-QXZM-M1, Shandong, China) located about 100 m away from the study site.

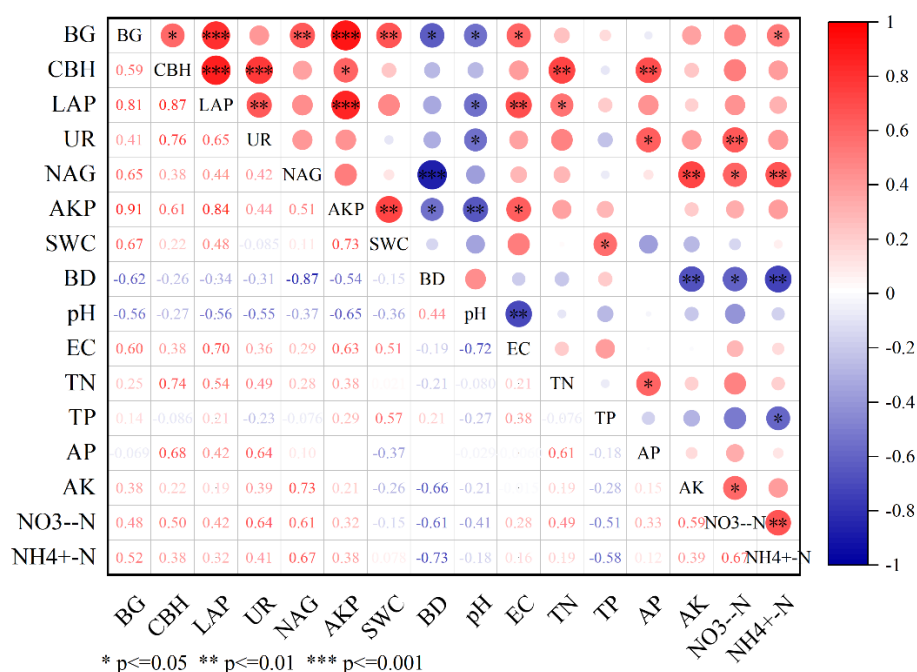


Figure S2. Pearson correlation between soil enzyme activities and soil physicochemical properties at the level of 0–20 cm depth of soil under intercropping or monocropping treatments. * indicates that correlations are significant. Variables: BG: β -glucosidase; CBH: cellobiohydrolase; LAP:

L-Leucine amino peptidase; UR: urease; NAG: β -1,4-N-acetylglucosaminidase; AKP: alkaline phosphatase; SWC: soil water content; BD: bulk density; EC: electrical conductivity; TN: total nitrogen; TP: total phosphorus; AP: available phosphorus; AK: available potassium; NO_3^- -N: nitrate nitrogen; NH_4^+ -N: ammonium nitrogen.

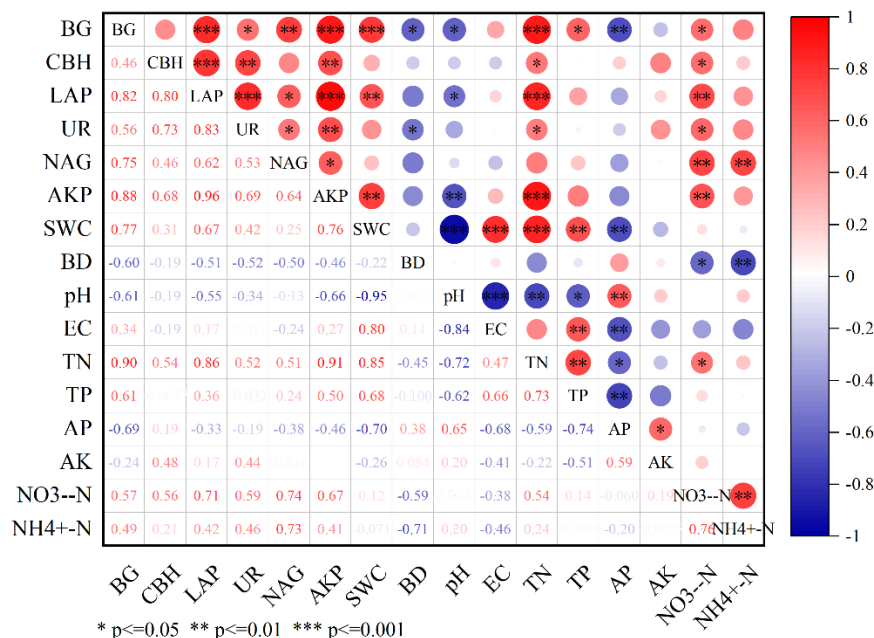


Figure S3. Pearson correlation between soil enzyme activities and soil physicochemical properties at the level of 20–40 cm depth of soil under intercropping or monocropping treatments. * indicates that correlations are significant. Variables: BG: β -glucosidase; CBH: cellobiohydrolase; LAP: L-Leucine amino peptidase; UR: urease; NAG: β -1,4-N-acetylglucosaminidase; AKP: alkaline phosphatase; SWC: soil water content; BD: bulk density; EC: electrical conductivity; TN: total nitrogen; TP: total phosphorus; AP: available phosphorus; AK: available potassium; NO_3^- -N: nitrate nitrogen; NH_4^+ -N: ammonium nitrogen.

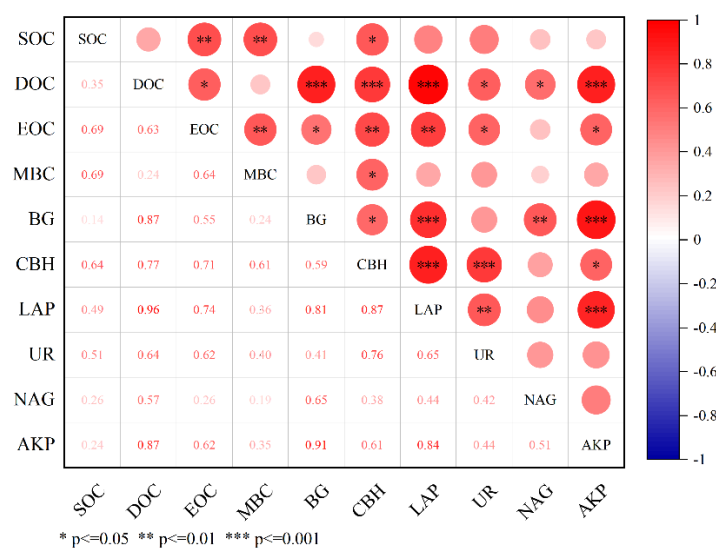


Figure S4. Pearson correlation between soil enzyme activities and soil organic carbon fractions at the level of 0–20 cm depth of soil under intercropping or monocropping treatments. * indicates that correlations are significant. Variables: BG: β -glucosidase; CBH: cellobiohydrolase; LAP: L-Leucine amino peptidase; UR: urease; NAG: β -1,4-N-acetylglucosaminidase; AKP: alkaline phosphatase; SOC: soil organic carbon; DOC: dissolved organic carbon; EOC: easily oxidizable carbon; MBC: microbial biomass carbon.

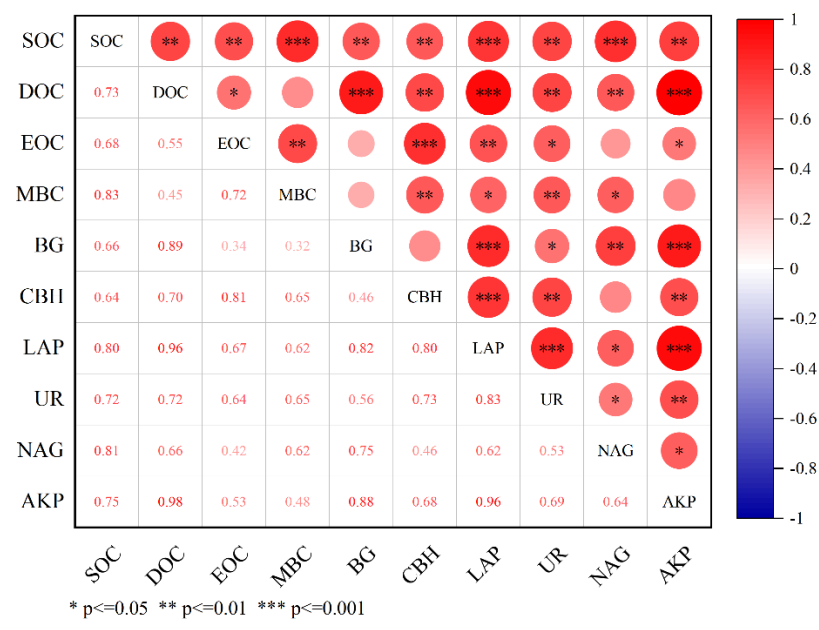


Figure S5. Pearson correlation between soil enzyme activities and soil organic carbon fractions at the level of 20–40 cm depth of soil under intercropping or monocropping treatments. * indicates that correlations are significant. Variables: BG: β -glucosidase; CBH: cellobiohydrolase; LAP: L-Leucine amino peptidase; UR: urease; NAG: β -1,4-N-acetylglucosaminidase; AKP: alkaline phosphatase; SOC: soil organic carbon; DOC: dissolved organic carbon; EOC: easily oxidizable carbon; MBC: microbial biomass carbon.