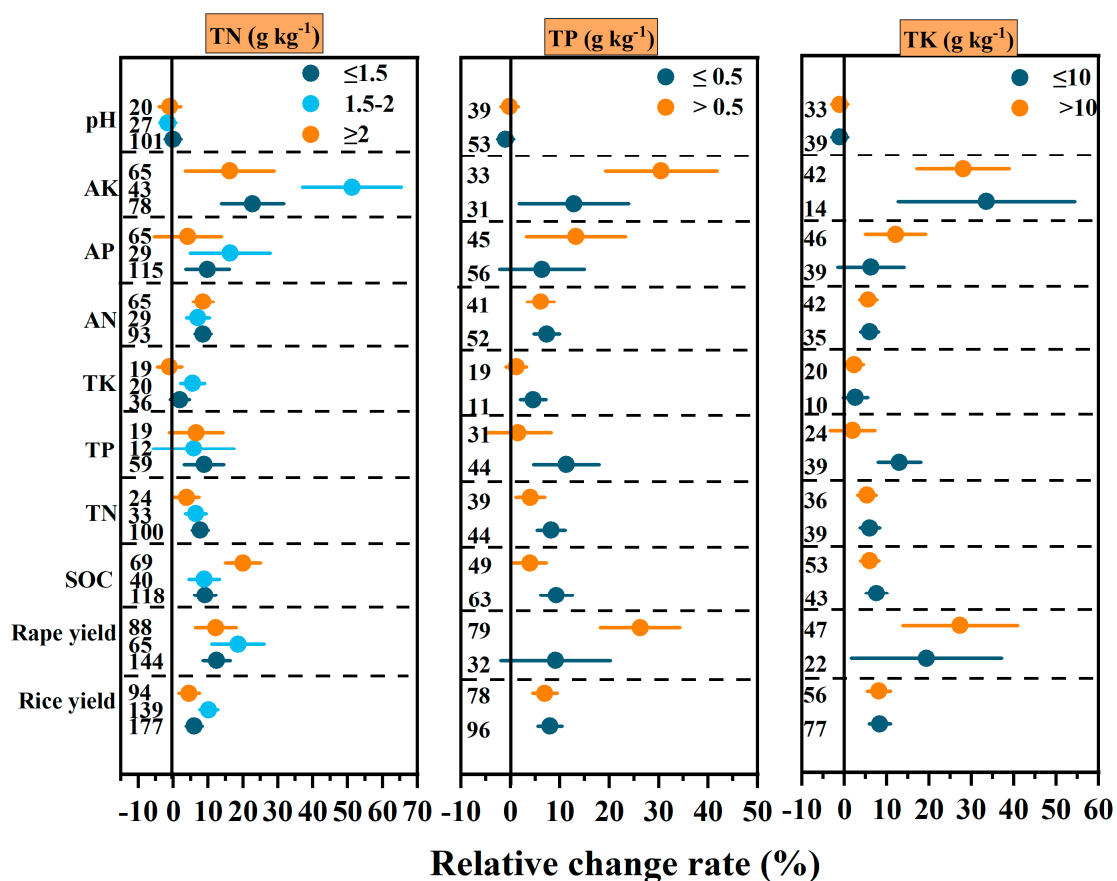


**Table S1. A list of variables in the meta-analysis for rice-oilseed cropping systems.**

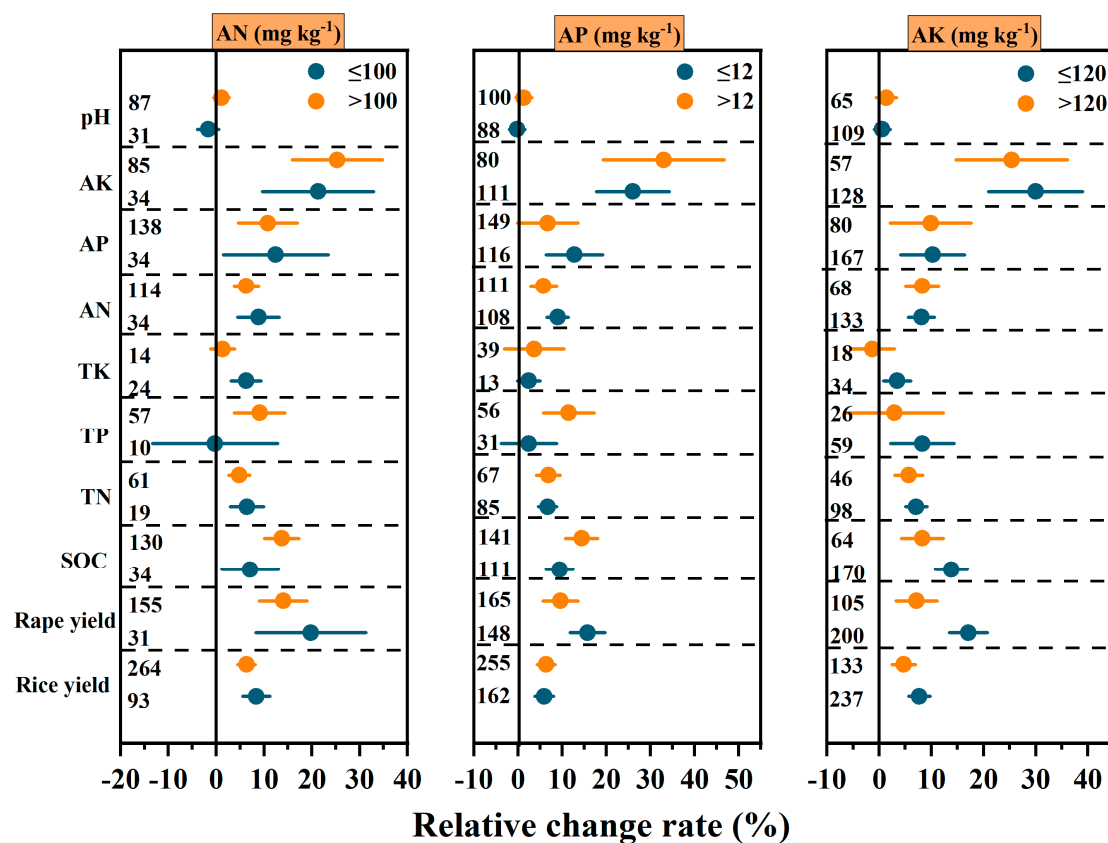
Items	Variables	Groups
Climate conditions	MAT (°C)	< 16
		≥ 16
	MAP (mm)	≤ 1000
		1000-1200
		≥ 1200
Initial soil properties	Initial SOC (g kg <sup>-1</sup> )	≤ 12
		12-18
		≥ 18
	pH	≤ 6
		> 6
	TN (g kg <sup>-1</sup> )	≤ 1.5
		1.5-2
		≥ 2
	TP (g kg <sup>-1</sup> )	≤ 0.5
		> 0.5
	TK (g kg <sup>-1</sup> )	≤ 10
		> 10
	AN (mg kg <sup>-1</sup> )	≤ 100
		> 100
	AP (mg kg <sup>-1</sup> )	≤ 12
		> 12
	AK (mg kg <sup>-1</sup> )	≤ 120
		> 120
Agricultural management practices	Fertilizer	with
		without
	Nitrogen input (kg ha <sup>-1</sup> )	≤ 150
		150-180
		≥ 180
	Tillage	No-Tillage
		Rotary Tillage
		Deep Tillage
	Straw return method	Straw incorporation
		Straw mulching

Note: The straw incorporation refers to the return of the straw to the soil after the harvest of the previous crop and the turning of the straw into the soil before the sowing or transplanting of the last crop. Straw mulching refers to covering the soil surface with crop straw. No-till means that the crop is sown directly on the original stubble without plowing or harvesting the land before sowing. The crop is not managed with agricultural tools during its reproductive period. The rotation tillage layer is generally 15-20 cm, and the plowing tillage layer is 20-30 cm. According to the USDA soil classification system, soil texture classes were categorized as sandy (sandy loam, sandy clay loam, loamy sand, and sand), loam (silt, loam, silty loam, and sandy silt loam), and clay (clay, clay loam, silty clay loam, and silty clay) soils.



**Figure S1. Effect of different soil conditions i.e., soil total nitrogen (TN), soil total phosphorus (TP), soil total potassium (TK) of straw return on crop yield and soil nutrients in a rice-oilseed rape cropping system.**

**Note:** SOC, soil organic carbon, AN, Soil available nitrogen, AP, soil available phosphorus, AK, soil available potassium. The numbers in the brackets represent the sample size. The mean effect and 95% confidence interval (CI) are shown if the CI does not overlap with the 0 line, which means significant effects ( $P < 0.05$ ).



**Figure S2. Effect of different soil conditions i.e., soil available nitrogen (AN), soil available phosphorus (AP), soil available potassium (AK) of straw return on crop yield and soil nutrients in a rice-oilseed rape cropping system.**

**Note:** SOC, soil organic carbon, TN, soil total nitrogen, TP, soil total phosphorus, TK, soil total potassium. The numbers in the brackets represent the sample size. The mean effect and 95% confidence interval (CI) are shown if the CI does not overlap with the 0 line, which means significant effects ( $P < 0.05$ ).