Table S1 Cost assessment of soil amendment with different fertilizers ($ /ha)

Article	Soil amendment	Organic fertilizer	Total Cost
1	105.79	338.52	444.31
2[1]	84.63	634.72	719.35
3[2]	338.52	272.93	611.45

Note: The fertilizer application rates listed in the table represent the optimal treatments in each experiment. The costs in Article 1 correspond to the fertilizer application in the T3 treatment in this study, and the costs in Articles 2 and 3 are based on the price of the articles themselves. We compared the costs of soil amendments with those of similar amendment methods (soil amendments and organic fertilizers) and did not take into account labor costs, land rent, and transport costs.

[1]Qin H J, Zhang C, Zhang X L, et al. Effects of biomass ash soil conditioner on pepper production[J]. Fertilizer & Health, 2023, 50(6): 22-24.
[2] Wang H D, Yang H B, Wan F W, et al. Effects of silicon-calcium-potassium-magnesium soil conditioner on potato yield and economic benefits in Inner Mongolia[J]. Chinese Soil and Fertilizer, 2022, (7): 126-131.

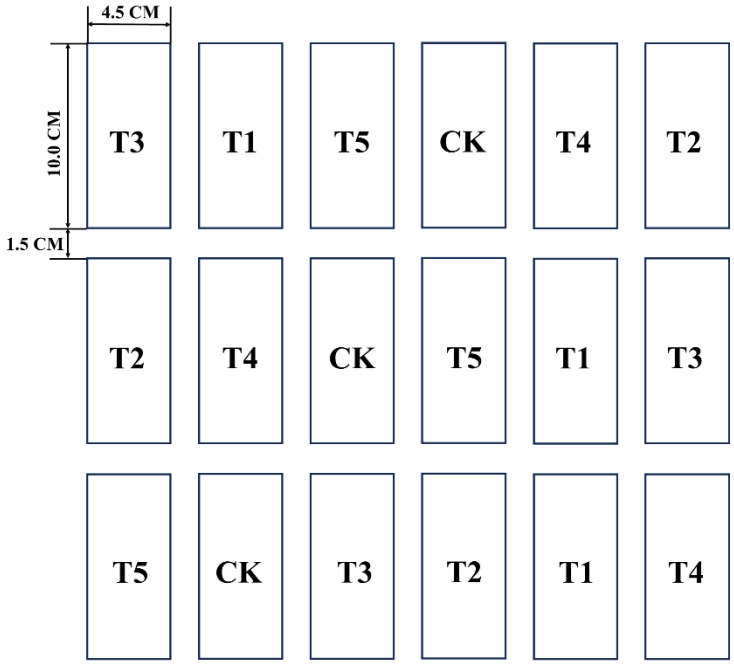


Figure S1. Distribution of plots in the test site

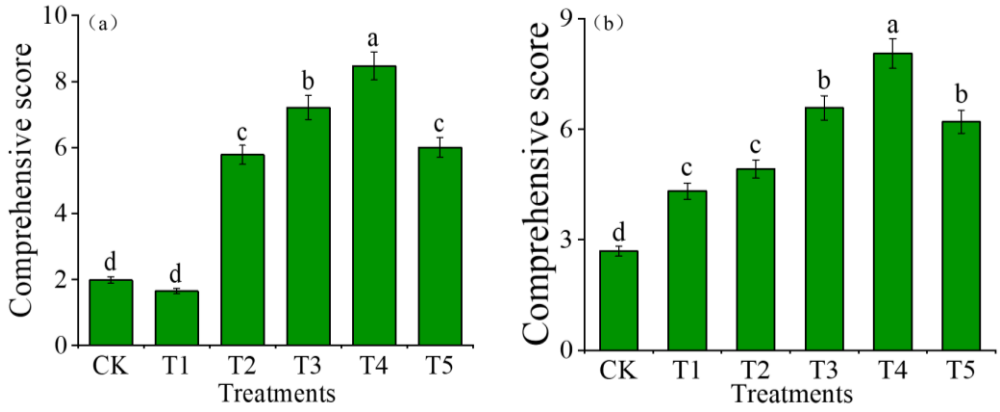


Figure S2. (a)Comprehensive score of vegetation;(b) Comprehensive evaluation of soil. Lowercase letters indicate whether the samples of the same index are significantly different from each other (p<0.05).

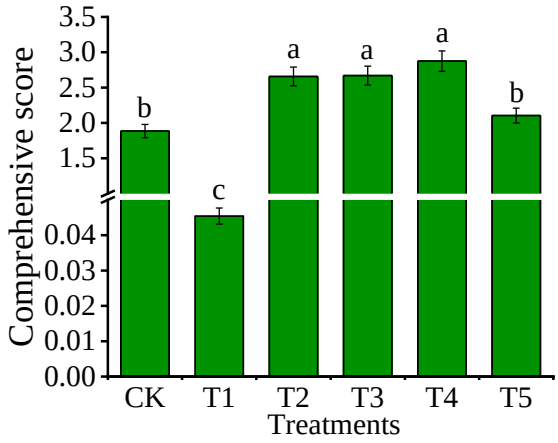


Figure S3. Comprehensive score of soil microbial activity. Lowercase letters indicate whether the samples of the same index are significantly different from each other (p<0.05).