

Xiao, C., Guenet, B., Zhou, Y., Su, J. and Janssens, I. A. 2014. Priming of soil organic matter decomposition scales linearly with microbial biomass response to litter input in steppe vegetation.

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Appendix 1

Table A1. Root production, soil microbial biomass, and relative abundances of marker PLFAs for fungi, bacteria and ratio of fungi to bacteria (Fungi/Bacteria) for different amounts of added plant litter in a steppe community of northern China. Values represent mean \pm standard error (n = 5). Different capital letters indicate significant differences between C₃ and C₄ soil whereas treatments with different small letters indicate significant differences between litter inputs treatments (p < 0.05) according to the Duncan test.

Litter inputs	Root production (kg DM m ⁻²)		Soil microbial biomass C (mg kg ⁻¹)		Soil microbial activity (mg CO ₂ kg ⁻¹ d ⁻¹)		Fungi (%)		Bacteria (%)		Fungi/Bacteria	
	Added litter to C ₃ soil	Added litter to C ₄ soil cores	Added litter to C ₃ soil	Added litter to C ₄ soil cores	Added litter to C ₃ soil	Added litter to C ₄ soil cores	Added litter to C ₃ soil	Added litter to C ₄ soil cores	Added litter to C ₃ soil	Added litter to C ₄ soil cores	Added litter to C ₃ soil	Added litter to C ₄ soil cores
0	0.83±0.02aA	0.80±0.04aA	162.9±8.8bA	172.6±9.0bA	25.0±0.75cA	26.0±0.74cA	8.32±0.43bA	8.95±0.66cA	75.89±0.93aA	75.79±0.60aA	0.11±0.01cA	0.12±0.01cA
60	0.84±0.04aA	0.82±0.04aA	170.3±10.2bA	183.1±11.3abA	26.5±0.72cA	27.9±0.73cA	8.62±0.35bA	9.29±0.52cA	74.02±0.44abA	74.26±1.39abA	0.12±0.01bcA	0.13±0.01cA
120	0.86±0.01aA	0.84±0.02aA	181.1±10.2abA	191.9±10.8abA	29.1±0.68bA	30.7±0.72bA	9.51±0.92bA	10.04±0.75bcA	73.44±0.87abA	73.72±0.63abA	0.13±0.01bcA	0.14±0.01bcA
240	0.88±0.01aA	0.87±0.03aA	192.3±9.4abA	200.9±11.6abA	31.8±0.98aA	32.1±1.12abA	10.41±1.14abA	11.33±0.43abA	71.87±1.74bA	72.35±0.62bcA	0.15±0.02abA	0.16±0.01abA
480	0.92±0.04aA	0.90±0.05aA	206.3±11.1aA	213.0±12.8aA	33.8±1.03aA	34.6±1.04aA	12.27±0.52aA	12.45±0.54aA	71.92±0.61bA	70.53±0.10cA	0.17±0.01aA	0.18±0.01aA

Table A2. Performance of three different functions in the fitting of the relationship between the intensity of the priming response and the changes soil microbial biomass (Fig. 5). R^2 is coefficient of determination, AIC is Akaike information criterion. cAIC is the corrected Akaike information criterion, which is to be preferred when n is small. Formulas are given in the methods section. The best model must present the better scores for all the metrics. When two models have close scores, the metric with the largest differences must be considered as the most important. Both the linear and logarithmic functions exhibit low values for corrected Akaike information criterion (cAIC). However, the linear function also has a much lower p value and a higher value for R^2 and is therefore the preferred model.

Function	R^2	p-value	AIC	cAIC
Linear: $Y = aX + b$	>0.99	$1.4 \cdot 10^{-24}$	18.4	24.4
Polynomial: $Y = aX^2 + bX + c$	0.99	0.0005	18.5	42.5
Logarithmic: $Y = a + (\ln(X))^b$	>0.92	$2.1 \cdot 10^{-6}$	17.9	23.9

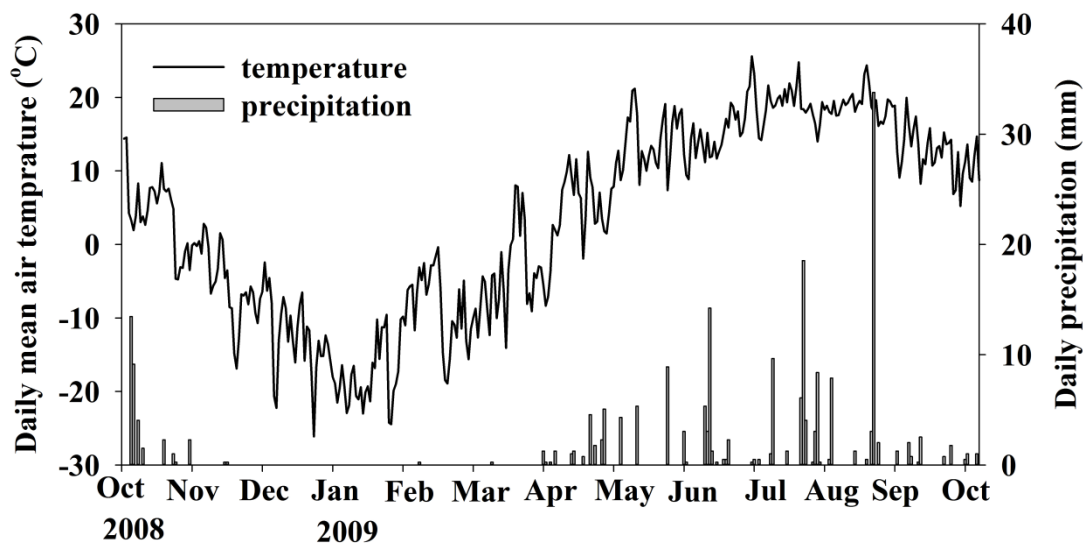


Figure A1. Seasonal variations of daily mean air temperature and daily precipitation during the experimental period from 1 October 2008 to 30 September 2009.

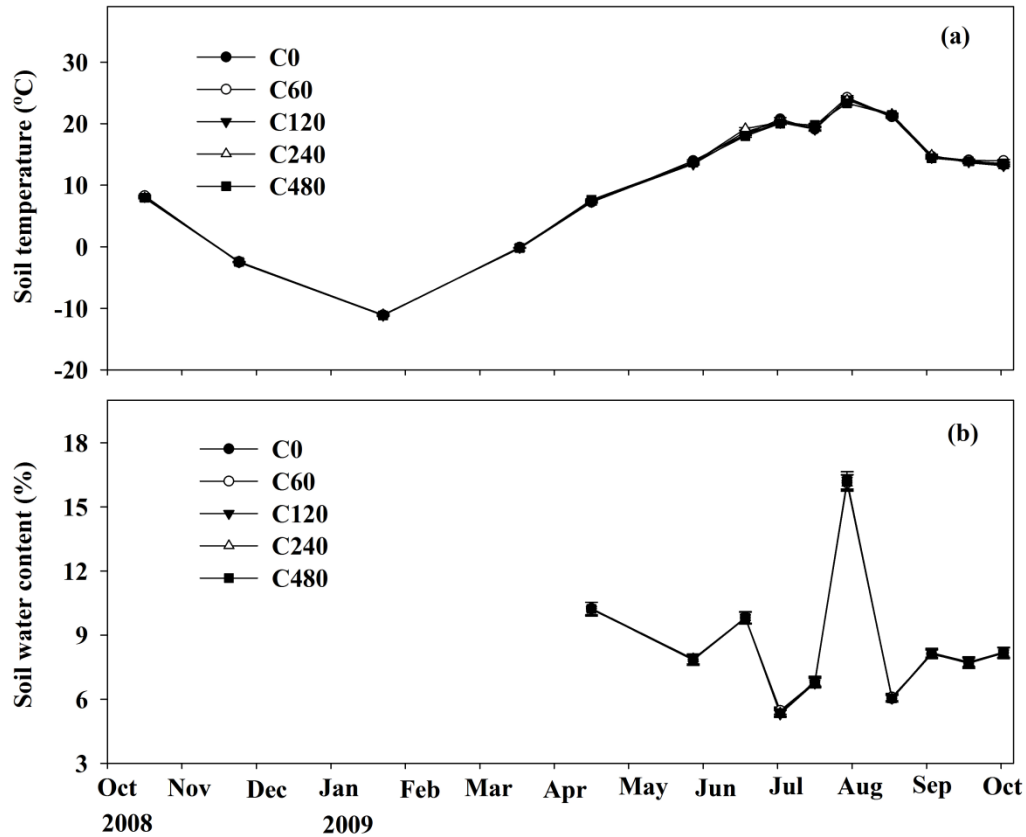


Figure A2. Variations of soil temperature and soil water content (at a depth of 10cm) under different amounts of added plant litter in a steppe community of northern China. Vertical bars indicate one standard error about the mean ($n = 5$).

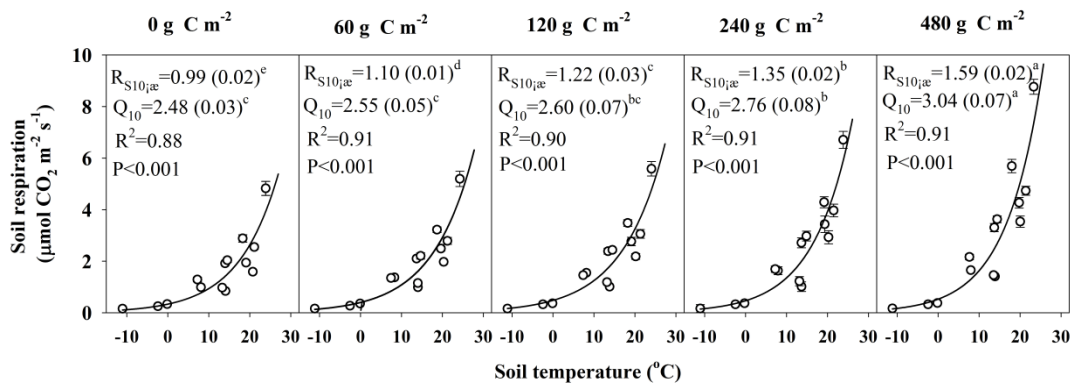


Figure A3. Soil respiration in a steppe community of northern China as a function of soil temperature (at a depth of 10 cm) under different amounts of added plant litter in a steppe community of northern China. R^2 is the coefficient of determination. Estimates of the basal rate of soil respiration at 10°C ($R_{S10;±}$) and the increase in soil respiration for every 10°C increase in temperature (Q_{10}) with their associated standard error about the mean (in brackets) are also shown. Treatments with different letters are significantly different ($p < 0.05$) according to the Duncan-test.