TABLES and FIGURES

Table 1: Soil and manure bulk parameters.

Characteristic	Soil	Manure[1]
Bulk Density/Total Solids (g/cm^3)	0.872	0.149
SWC (g water/g dry sample)	0.4752	5.9925
pH	4.37	6.68
Particle Diameter (µm)	1.2	14.3
Electrical conductivity (µScm)	370	5.33
OM loss on ignition (%)	9.81	87.55
BET Surface Area (m^2/g)	4.93	0.32
Pore Diameter (nm)	14.93	33.62
Zeta potential (mV)	-13.11	-5.87

[1] Average values from 4 farms. Manure characteristic data from each farm may be found in **Supplemental Table S2**.

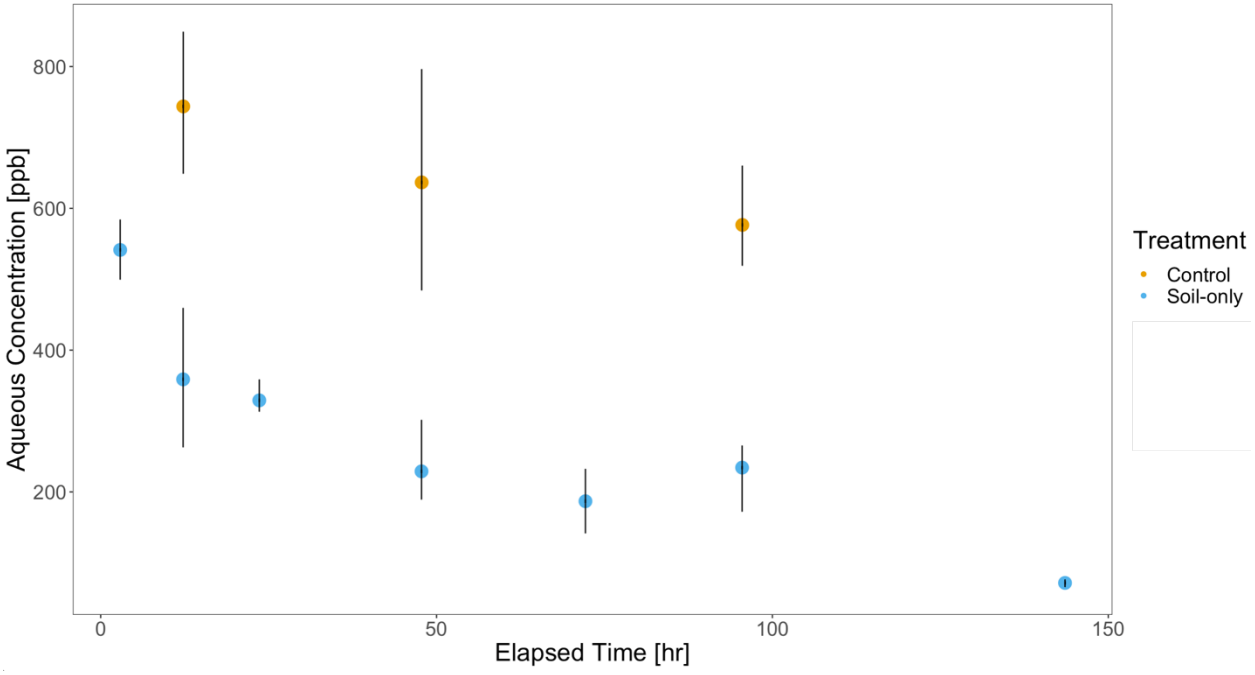


Figure 1: Soil-only (S) equilibration time between erythromycin and Caneseraga soil (blue) compared to control reactors (yellow) with no soil. Error bars represent the range of the 3 replicates used to obtain the points plotted.

Table 2: Converted model parameters from linearized and non-linear regressions. Eq. 2 is the non-linear regression and Eq. 3 the linearization are Langmuir isotherms with K and q_{max} parameters.

Model	S Parameters		SM Parameters	
	K	q_{max}	K	q_{max}
Eq. 2	8.01×10^{-2} *	1.53×10^{-3} *	NA†	NA†
Eq. 3	6.38×10^{-2} *	1.52×10^{-3} *	1.99×10^{-4} *	4.63×10^{-2}

* Statistically significant model parameters (p-value < 0.05)

† Non-linear regression modeling (Eq. 2) with the SM data did not generate a stable result.

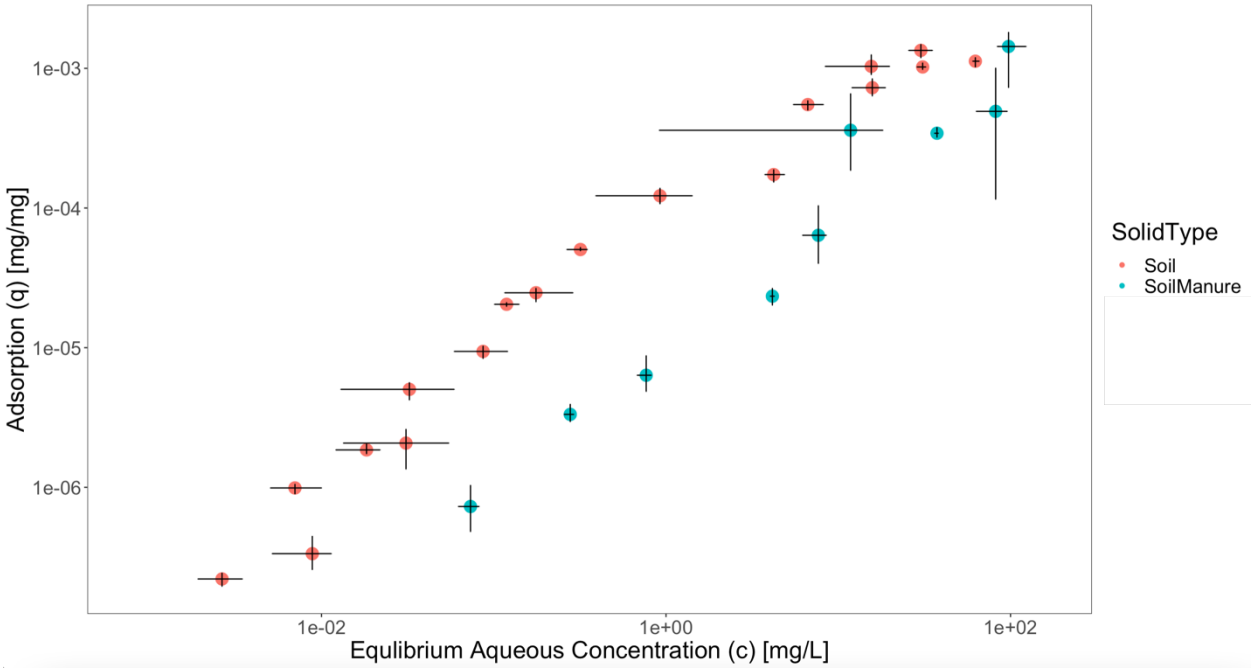


Figure 2: Soil-only (S) and soil + manure (SM) isotherms. Error bars represent the range in the 3 replicates averaged for each point.

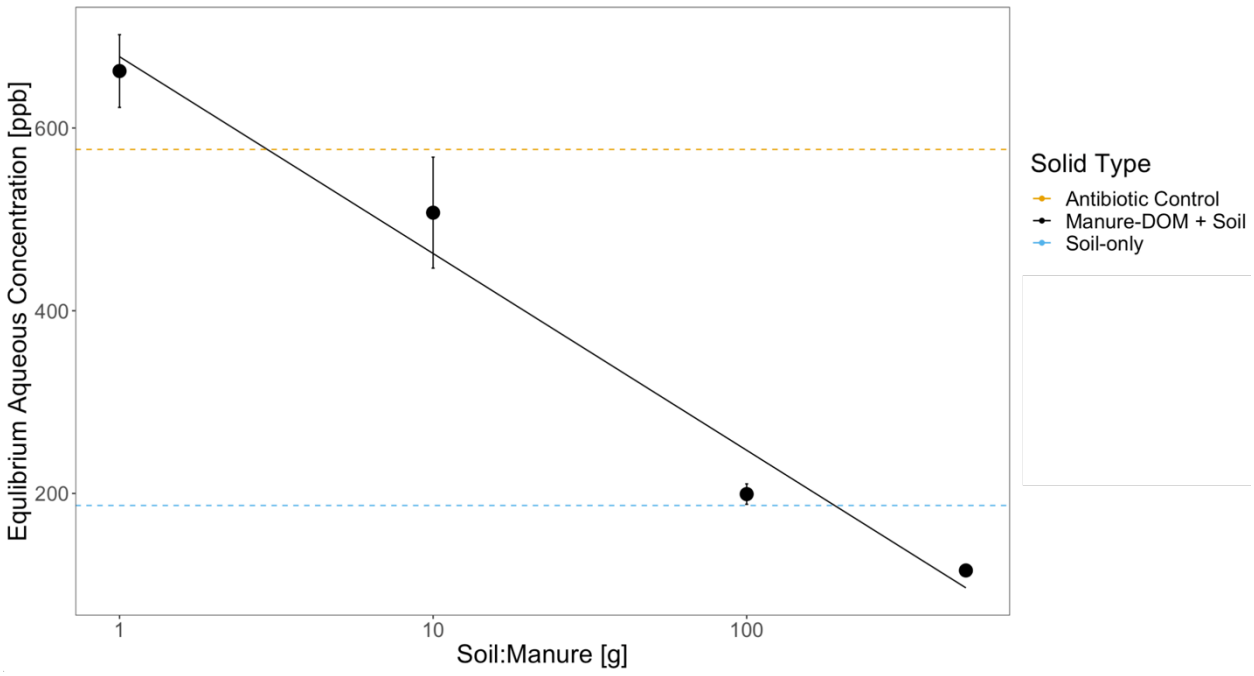


Figure 3: Filtered manure-DOM influence on erythromycin aqueous concentration after 72 hr reaction with 5 g soil. Error bars represent the range of the data. Fitted model follows eq.4 (black line). Antibiotic control (yellow line) and 72 hr S sample (blue line) are provided for reference.

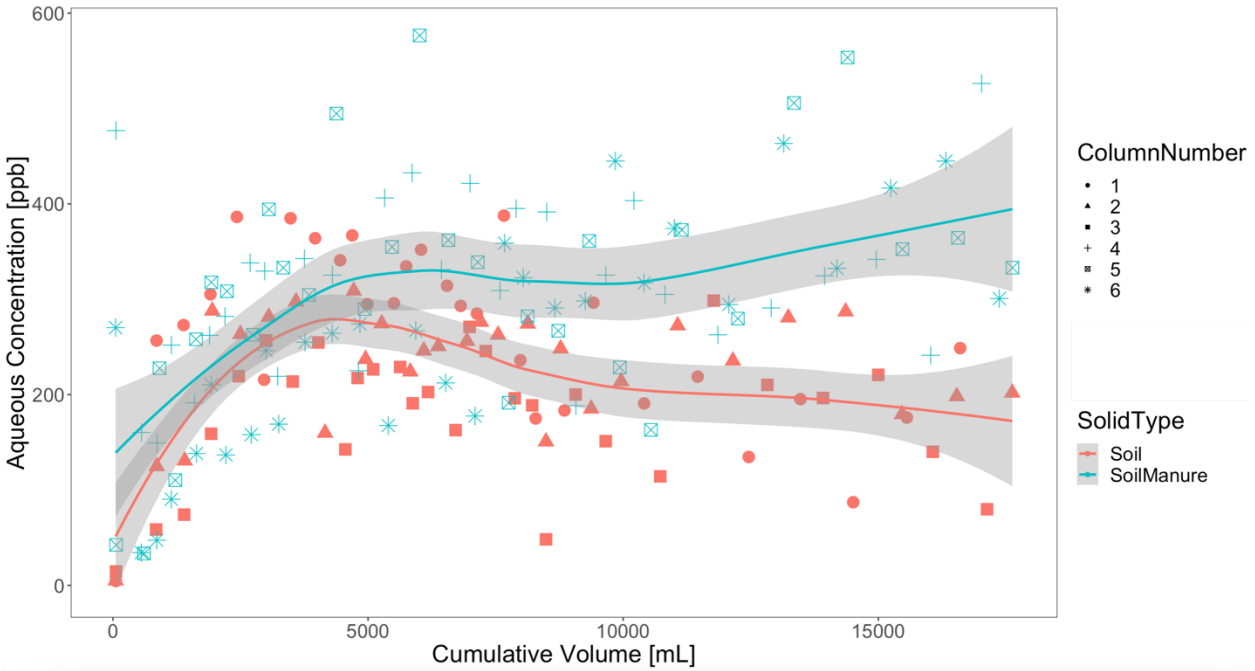


Figure 4: Aqueous concentrations of erythromycin (C_o = 500 ppb) after passage through S (red) or SM (blue) columns. Volume represents exfiltrate from column. Unique shapes indicate samples from the same columns. Columns 1-3 were S, columns 4-6 were SM. Trend lines are fitted with a loess smoothing model.

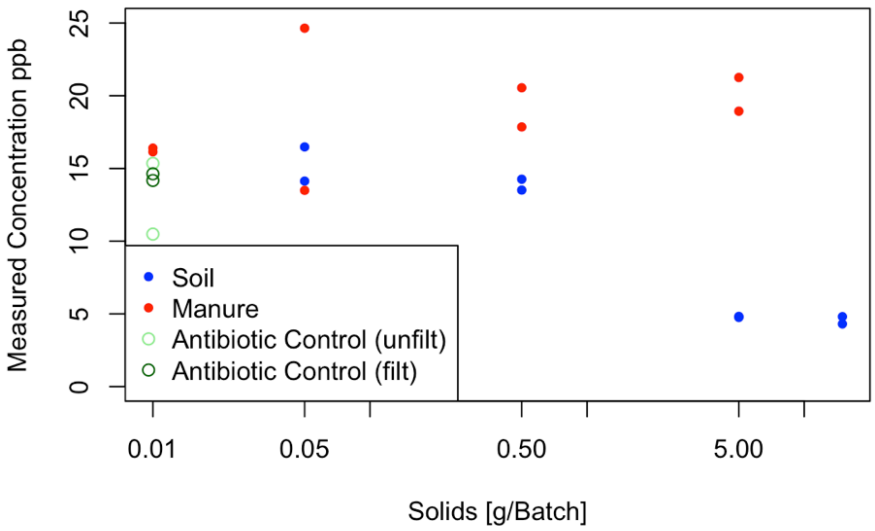
Supplemental Figures

Supplemental Table S1. Effect of autoclaving solids on bulk characteristics. 'AO' represents samples that were autoclaved then oven dried while 'O' represents samples that were only oven dried. All experiments used AO samples. All manure samples were from Farm 2. Standard deviations of replicates appear in parentheses.

Characteristic	Soil-AO	Soil-O	Manure-AO	Manure-O
Bulk Density(g/cm^3)	0.872 (0.07)	0.876 (0.081)	0.167 (0.007)	0.183 (0.008)
SWC (g water/g dry sample)	0.4752 (0.016)	0.4700 (0.039)	5.253 (0.208)	4.761(0.23)
pH	4.37 (0.22)	4.93 (0.24)	6.39 (0.007)	7.2 (0.32)
Nanoparticle Diameter (nm)	1,216	1,169	11,428	13,742
Electrical conductivity (µScm)	370 (13)	190 (10)	4.42 (0.10)	3.35 (0.14)
OM loss on ignition (%)	9.81 (0.47)	10.23 (1.27)	76.00 (3.03)	70.50 (1.78)
Surface Area (m^2/g)	4.93	5.13	0.52	0.44
Pore Diameter (nm)	14.93	15.64	28.83	26.56
Zeta potential (mV)	-13.11 (0.47)	-13.91(0.71)	-13.20 (0.30)	-11.77 (0.72)

Supplemental Table S2. Manure solid characteristics from each farm. Farms 1-4 were averaged and reported in **Table 2** along with soil characteristic data.

Characteristic	Farm 1	Farm 2	Farm 3	Farm 4
Bulk Density(g/cm^3)	0.1711	0.1665	0.1354	0.1216
SWC (g water/g dry sample)	5.17	5.25	6.14	7.41
pH	6.74	6.39	6.67	7.25
Particle Diameter (nm)	12,402	11,429	19,343	14,011
Electrical conductivity (µScm)	4.800	4.425	4.100	8.025
OM loss on ignition (%)	83.66	90.84	90.92	84.78
Surface Area (m^2/g)	0.484	0.525	0.310	0.428
Pore Diameter (nm)	32.98	28.83	39.04	33.66
Zeta Potenital (mV)	-2.80	-13.2	-2.81	-4.67



Supplemental Figure S1. Solids ratios tested to determine adsorption detection within ELISA detection range for equilibrium batch reactions. Following this test, 5 g soil was used in each batch reactor (150 mL).