



RESEARCH SUMMARIES

THE EFFECT OF HEAT-TREATED POULTRY PELLETS AND COMPOSTED POULTRY LITTER ON *E. COLI* SURVIVAL IN SOUTHEASTERN US SOILS: FLORIDA AND GEORGIA

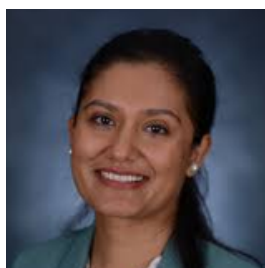
Amendment type significantly influenced *E. coli* survival, with heat-treated poultry pellets (HTPP) showing highest survival, then poultry litter (PL), then unamended (UN) soil with the lowest survival.

In UN plots, *E. coli* sharply declined to close to the limit of detection by day 14 and 112 in FL and GA, respectively. However, *E. coli* survived for up to 140 days in PL- and HTPP-amended soils at both locations.

Sampling days	FL			GA		
	UN	PL	HTPP	UN	PL	HTPP
0	5.95±0.07 _{A,a}	5.99±0.51 _{A,a}	5.84±0.07 _{A,a}	4.35±0.74 _{A,a}	4.90±0.96 _{A,a}	4.13±0.77 _{A,ab}
1	5.03±0.39 _{A,a}	4.74±0.74 _{A,ab}	5.14±0.34 _{A,a}	1.93±1.11 _{A,ab}	4.34±0.49 _{A,ab}	2.88±1.25 _{A,bcd}
3	1.30±0.56 _{C,c}	4.09±0.30 _{B,b}	5.51±0.32 _{A,a}	1.93±1.80 _{B,ab}	4.50±0.10 _{AB,ab}	5.25±0.12 _{A,a}
7	2.88±0.28 _{B,b}	4.90±0.46 _{A,ab}	4.08±0.48 _{A,b}	2.02±1.74 _{A,ab}	3.65±0.39 _{A,abc}	3.52±0.21 _{A,bc}
14	-0.01±0.40 _{B,d}	1.58±1.06 _{B,c}	3.90±0.16 _{A,b}	1.99±1.18 _{A,ab}	3.38±0.15 _{A,abc}	3.55±0.50 _{A,bc}
28	0.37±0.79 _{B,c,d}	1.11±0.59 _{B,c}	2.66±0.16 _{A,c}	1.53±0.71 _{A,ab}	2.73±1.77 _{A,bcd}	3.04±0.39 _{A,bcd}
56	-0.14±0.19 _{B,d}	0.40±0.34 _{B,c}	2.13±0.72 _{A,c,d}	1.25±0.65 _{B,b}	2.54±0.26 _{A,bcd}	2.20±0.43 _{A,bcd}
84	0.34±0.44 _{B,c,d}	0.27±0.19 _{B,c}	1.47±0.40 _{A,d}	2.39±0.45 _{A,ab}	1.45±0.38 _{B,c,d}	2.11±0.22 _{AB,c,d}
112	-0.24±0.00 _{C,d}	0.64±0.48 _{B,c}	1.52±0.22 _{A,d}	§ ND	1.02±0.00 _{B,d}	2.44±0.37 _{A,c,d}
140	0.04±0.48 _{B,c,d}	0.30±0.55 _{B,c}	1.49±0.28 _{A,d}	§ ND	0.71±1.21 _{A,d}	1.57±0.38 _{A,d}

State	^a Treatments	^b Environmental factor	^c Correlation coefficient (ρ)	Prob> ρ
Overall	^d All treatments	Total radiation	0.2942	<0.0001
		Rainfall	-0.3519	<0.0001
		Soil temperature	0.2218	0.0028
		Air temperature	0.0304	0.6856
		Relative humidity	0.2848	0.0001
		Soil moisture	-0.5729	<0.0001

Environmental factors with moderate-strong ($\rho > 0.40$) and significant correlations ($P < 0.05$) with *E. coli* survival are represented in bold print.



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Except for soil moisture and rainfall parameters, the weak correlation between other tested environmental parameters and survival indicated that factors intrinsic to the location may not be as influential on *E. coli* survival as the amendment type and time.



**MORE
INFORMATION**

Kharel, K., Bardsley C.A., Appolon, C.B., Dunn, L.L., Kumar, G.D., Prabha, K., Sharma, M., Danyluk, M.D., Schneider, K.R., 2025. The Effect of Heat-treated Poultry Pellets and Composted Poultry Litter on *E. coli* Survival in Southeastern US Soils: Florida and Georgia. *J. Food Prot.* 88(1) <https://doi.org/10.1016/j.jfp.2024.100439>

