

**Table S1: Default parameters of the Century model affecting litter and SOC dynamics (Parton et al., 1988).**

Parameter	Matrix source	Description	Value	Range	Units
fam2a	<b>A</b>	Transfer fraction, aboveground metabolic litter to active SOC	0.45	[0:1]	
fbm2a	<b>A</b>	Transfer fraction, belowground metabolic litter to active SOC	0.45	[0:1]	
fas2a	<b>A</b>	Transfer fraction, aboveground structural litter to active SOC	0.55	[0:1]	
fbs2a	<b>A</b>	Transfer fraction, belowground structural litter to active SOC	0.45	[0:1]	
fas2s	<b>A</b>	Transfer fraction, aboveground structural litter to slow SOC	0.7	[0:1]	
fbs2s	<b>A</b>	Transfer fraction, belowground structural litter to slow SOC	0.7	[0:1]	
fa2p	<b>A</b>	Transfer fraction, active to passive SOC	0.004	[0:1]	
fs2a	<b>A</b>	Transfer fraction, slow to active SOC	0.42	[0:1]	
fs2p	<b>A</b>	Transfer fraction, slow to passive SOC	0.03	[0:1]	
fp2a	<b>A</b>	Transfer fraction, passive to active SOC	0.45	[0:1]	
clay	<b>A</b> , $f_{clay}$	Clay content		[0:1]	
lgc	<b>A</b> , $f_L$	Lignin coefficient of structural litters	3	[0:10]	
lga	<b>A</b> , $f_L$	Belowground lignin content	0.76	[0:1]	
lgb	<b>A</b> , $f_L$	Aboveground lignin content	0.72	[0:1]	
tau4ml	<b>K</b>	Turnover time, metabolic litter	0.066	[0:0.066]	year
tau4sl	<b>K</b>	Turnover time, structural litter	0.245	[0:0.245]	year
tau4a	<b>K</b>	Turnover time, active SOC	0.149	[0:0.149]	year
tau4s	<b>K</b>	Turnover time, slow SOC	5.48	[0:5.48]	year
tau4p	<b>K</b>	Turnover time, passive SOC	241	[0:241]	year