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Soil Research

Supplementary Material

Soil organic matter fractions under different land uses and soil classes in the Brazilian semi-arid region

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Appendix supplementary

Appendix 1. Soil organic carbon (SOC) (Mg ha^{-1}) in 0–10, 10-20, 20-30, 30-50, 50-80 and 80-100 cm soil layers under native vegetation (NV), conventional cultivation (CC) and pasture (PA) in the semiarid region of northeastern Brazil.

Soil layer (cm)	SOC (Mg ha^{-1})		
	Native vegetation	Conventional cultivation	Pasture
0-10	30.4 a	22.1 b	24.0 ab
10-20	20.4 a	20.4 a	16.9 a
20-30	14.9 a	13.4 a	14.0 a
30-50	24.2 a	22.7 a	20.8 a
50-80	21.1 a	15.7 a	17.9 a
80-100	17.6 a	21.0 b	15.3 a

Values followed by the same letters on the row do not differ by the Dunn test ($p<0.05$).

Appendix 2. Soil organic carbon (SOC) (Mg ha^{-1}) in 0–10, 10-20, 20-30, 30-50, 50-80 and 80-100 cm soil layers under native vegetation (NV) and systems (agriculture and pasture) in different soil classes in semiarid regions of northeastern Brazil.

Soil type	Soil layer (cm)	SOC (Mg ha^{-1})	
		Native vegetation	Agricultural systems
Acrisols	0-10	28.0 a	16.6 b
	10-20	22.3 a	16.7 a
	20-30	15.3 a	14.9 a
	30-50	22.7 a	26.1 b
	50-80	21.0 a	18.5 a
	80-100	17.6 a	17.7 a
Cambisols	0-10	25.5 a	26.5 a
	10-20	27.6 a	25.6 a
	20-30	24.7 a	18.9 b
	30-50	46.9 a	31.4 a
	50-80	25.2 a	32.6 b
	80-100	19.1 a	22.9 b

Planosols	0-10	31.87 a	22.25 b
	10-20	19.05 a	14.64 b
	20-30	12.72 a	12.43 a
	30-50	16.43 a	15.14 b
Luvisols	0-10	30.74 a	15.0 b
	10-20	14.87 a	11.31 a
	20-30	6.54 a	9.66 a
	30-50	27.03 a	17.8 b
Leptsols	0-10	39.7 a	30.22 b
	10-20	24.39 a	29.42 a
	20-30	14.64 a	11.76 a
	30-50	23.28 a	20.83 a

Values followed by the same letters on the row do not differ by the Mann Whitney test ($p<0.05$).

Appendix 3. Soil organic carbon (SOC) (Mg ha^{-1}) in labile organic carbon (LC) and non-labile carbon (NLC) fractions in 0–10, 10-20, 20-30, 30-50, 50-80 and 80-100 cm soil layers under native vegetation (NV), conventional systems (CC) and pasture (PA) in the semiarid region of northeastern Brazil.

Soil layer (cm)	SOC (Mg ha^{-1})					
	Native vegetation		Conventional cultivation		Pasture	
	LC	NlC	LC	NlC	LC	NlC
0-10	5.0 A*	25.6 a	2.7 B	18.8 b	5.0 A	20.0 ab
10-20	3.5 A	18.5 a	2.4 A	17.4 a	2.9 AB	15.4 a
20-30	2.5 A	11.2 a	2.1 A	11.8 a	2.7 AB	12.2 a
30-50	3.8 A	19.8 a	2.9 A	19.2 a	3.2 A	17.7 a
50-80	3.0 A	18.3 a	3.9 A	13.3 a	2.0 A	15.4 a
80-100	3.3 A	11.3 a	1.0 AB	13.5 b	1.0 B	13.5 a

* Uppercase and lowercase letters within the same soil depth compare LC and NLC, respectively. Values followed by the same letters do not differ by the Dunn's test ($p < 0.05$).

Appendix 4. Soil organic carbon (SOC) (Mg ha^{-1}) in labile organic carbon (LC) and non-labile carbon (NLC) fractions in 0–10, 10-20, 20-30, 30-50, 50-80 and 80-100 cm soil layers under native vegetation (NV) and agricultural systems (agriculture and pasture) in different soil classes in semiarid regions of northeastern Brazil.

Soil type	Soil layer (cm)	SOC (Mg ha^{-1})			
		Native vegetation		Agricultural systems	
		LC	NlC	LC	NlC
Acrisols	0-10	4.5 A*	20.2 a	2.4 B	15.3 b
	10-20	2.8 A	18.0 a	2.0 A	13.9 a
	20-30	12.0 A	12.2 a	1.9 A	13.2 a
	30-50	4.0 A	117.3 a	2.6 B	22.8 b
	50-80	2.6 A	10.8 a	2.3 A	15.7 b
	80-100	3.3 A	14.3 a	0.7 B	16.7 a
Cambisols	0-10	4.0 A	21.4 a	3.2 A	23.4 a
	10-20	3.5 A	24.0 a	3.0 A	22.1 a
	20-30	3.0 A	22.4 a	2.2 B	16.7 a
	30-50	4.2 A	43.7 a	4.4 A	26.2 a
	50-80	5.2 A	20.0 a	4.9 B	27.9 b
	80-100	4.9 A	14.2 a	2.8 B	20.5 b
Planosols	0-10	4.9 A	27.9 a	2.9 B	18.8 b
	10-20	3.8 A	16.1 a	2.3 B	12.9 b
	20-30	3.0 A	9.4 a	1.3 B	10.0 a
	30-50	2.9 A	15.5 a	2.9 A	12.9 a
Luvisols	0-10	6.0 A	24.8 a	2.6 A	12.1 b
	10-20	3.7 A	11.1 a	1.9 B	8.5 a
	20-30	2.6 A	8.4 a	2.2 A	7.1 a
	30-50	1.7 A	23.8 a	3.1 A	14.2 b
Leptosols	0-10	6.0 A	33.9 a	5.7 A	23.8 b
	10-20	3.4 A	21.3 a	4.1 A	25.3 a
	20-30	2.6 A	12.1 a	2.7 A	9.1 a
	30-50	4.4 A	18.8 a	3.2 A	17.4 a

* Uppercase and lowercase letters within the same soil depth compare LC and NLC, respectively. Values followed by the same letters do not differ by the Mann Whitney test ($p<0.05$).

Appendix 5. Carbon pool index (CPI), lability (L), and lability index (LI) in 0–30, 0–50, and 0–100 cm soil layers under native vegetation (NV) and agricultural systems (AS) (agriculture and pasture) in different soil classes in the semiarid region of northeastern Brazil.

Soil type	Soil layer (cm)	Land-use	CPI	L [(1)]	LI
Acrisols	0-30	NV	-	0.16 a	-
		AS	0.95	0.16 a	0.93
	0-50	NV	-	0.18 a	-
		AS	0.94	0.17 a	0.94
	0-100	NV	-	0.21 a	-
		AS	1.04	0.17 a	0.75
Cambisols	0-30	NV	-	0.21 a	-
		AS	0.81	0.17 a	0.93
	0-50	NV	-	0.22 a	-
		AS	0.92	0.15 a	0.76
	0-100	NV	-	0.25 a	-
		AS	0.98	0.11 b	0.42
Planosols	0-30	NV	-	0.23 a	-
		AS	0.74	0.18 a	0.78
	0-50	NV	-	0.23 a	-
		AS	0.77	0.18 a	0.83
Luvisols	0-30	NV	-	0.18 a	-
		AS	0.96	0.20 a	1.07
	0-50	NV	-	0.20 a	-
		AS	0.93	0.20 a	1.00
Leptosols	0-30	NV	-	0.22 a	-
		AS	0.66	0.26 a	1.40
	0-50	NV	-	0.18 a	-
		AS	0.67	0.25 a	1.64

Values followed by the same letter within the same soil layer do not differ by the Student's test ($p<0.05$) [1]. Values in parentheses represent the standard error of the mean.