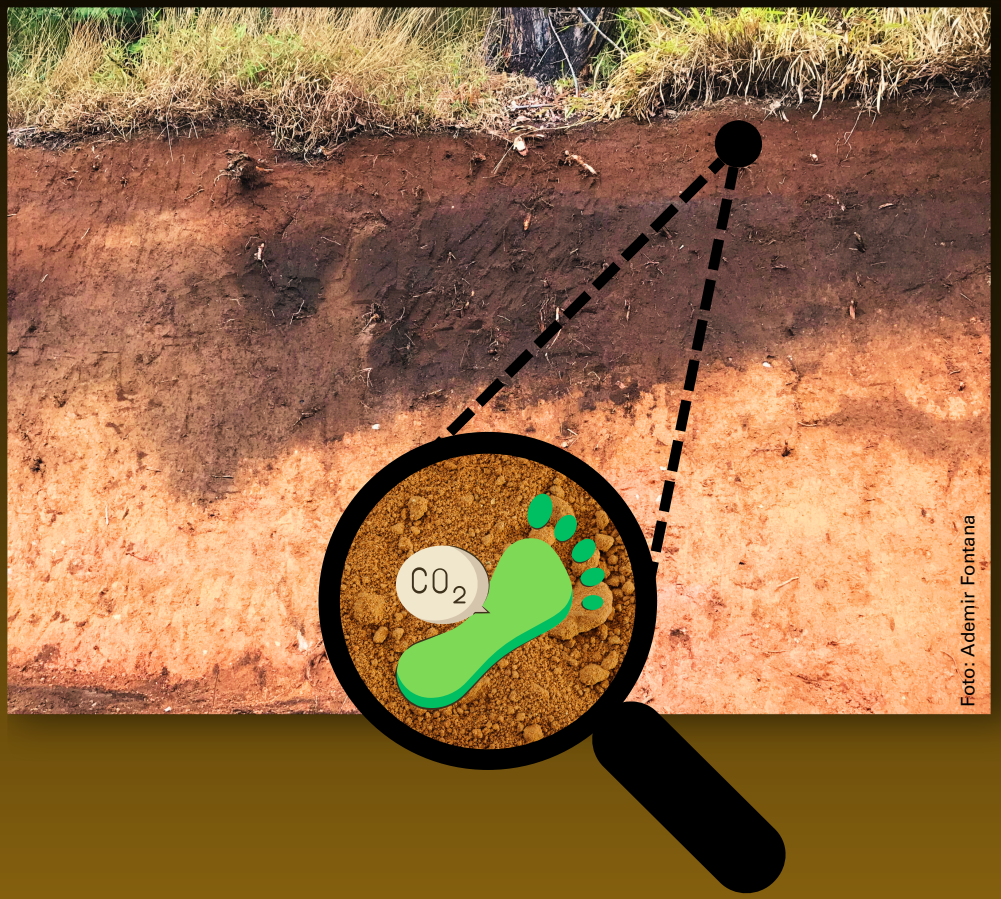
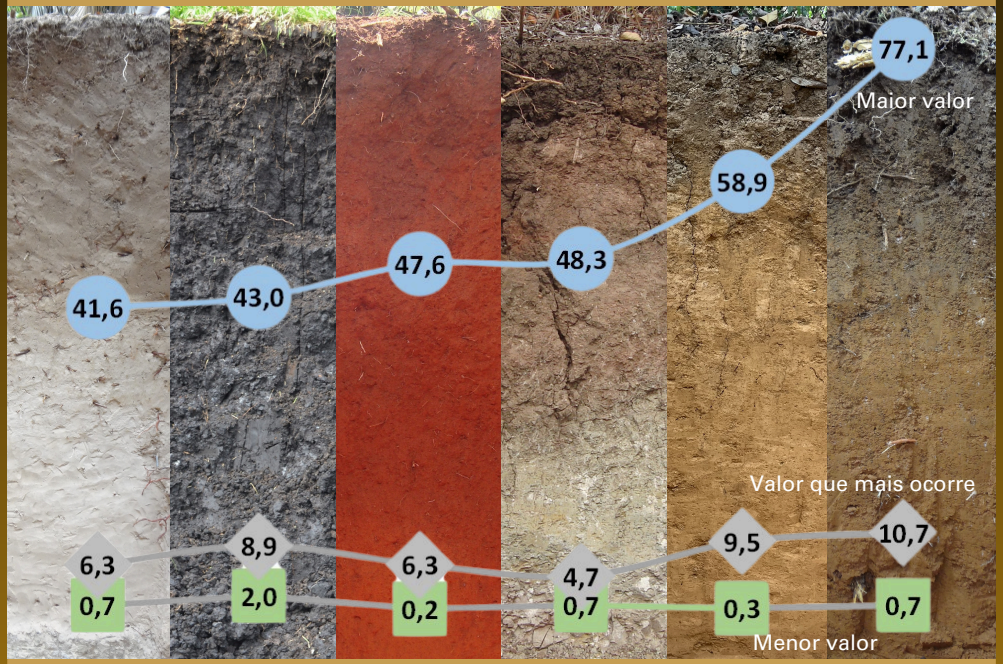


Níveis de referência de carbono orgânico no solo sob vegetação natural dos biomas brasileiros



Embrapa
MINISTÉRIO DA AGRICULTURA E PECUÁRIA

Embrapa
Gado de Corte

Apresentação

O teor de carbono orgânico (C org) representado na forma de faixas, categorias ou níveis é adequado para a avaliação do estado atual e do potencial de acúmulo de matéria orgânica nos solos.

Nos solos cultivados, esses níveis são orientadores para o monitoramento da influência das culturas, arranjos de culturas, sistemas de cultivo e das práticas e/ou manejo no incremento de matéria orgânica.

O estabelecimento dos níveis (baixo, médio e alto) considera variações das camadas de solo até a profundidade de 40 cm e em diferentes formas de avaliação: i) por bioma e textura (tabelas 1 a 5); ii) por bioma (tabela 6); iii) por textura (tabela 7); iv) em geral (tabela 8). Para mais detalhes, Fontana et al. (2024).

Algumas classes de textura têm insuficiência de dados para a definição dos níveis, especialmente, a classe siltosa. No bioma Pampa, os dados são insuficientes para todas as texturas, não sendo obtido a condição por bioma e textura.

Teores das frações granulométricas para obtenção dos grupamentos texturais.

Classe textural	Areia Total	Argila	Areia Total - Argila
	g kg^{-1}		
Arenosa	-	-	> 700
Média	> 150	< 350	-
Argilosa	-	≥ 350 ≤ 600	-
Muito Argilosa	-	> 600	-
Siltosa	≤ 150	< 350	-

Fonte: Santos et al. (2018). Sistema Brasileiro de Classificação de Solos – SiBCS.

Tabela 1. Níveis de C org (g kg^{-1}) nas camadas (cm) e classes texturais do solo sob vegetação natural do **bioma Amazônia**.

Nível	0-10	10-20	20-30	30-40	0-20	20-40
			Arenosa			
Baixo	< 5,0	< 3,0	< 2,0	< 1,0	< 4,0	< 2,0
Médio	5,0-14,0	3,0-10,0	2,0-6,0	1,0-3,0	4,0-12,0	2,0-6,0
Alto	> 14,0	> 10,0	> 6,0	> 3,0	> 12,0	> 6,0
			Média			
Baixo	< 7,0	< 5,0	<3,0	< 3,0	< 6,0	< 3,0
Médio	7,0-22,0	5,0-14,0	3,0-9,0	3,0-8,0	6,0-18,0	3,0-9,0
Alto	> 22,0	> 14,0	> 9,0	> 8,0	> 18,0	> 9,0
			Argilosa			
Baixo	< 10,0	< 6,0	< 4,0	< 3,0	< 8,0	< 4,0
Médio	10,0-30,0	6,0-17,0	4,0-11,0	3,0-10,0	8,0-23,0	4,0-11,0
Alto	> 30,0	> 17,0	> 11,0	> 10,0	> 23,0	> 11,0
			Muito Argilosa			
Baixo	< 13,0	< 7,0	< 5,0	< 4,0	< 9,0	< 5,0
Médio	13,0-38,0	7,0-21,0	5,0-15,0	4,0-12,0	9,0-27,0	5,0-14,0
Alto	> 38,0	> 21,0	> 15,0	> 12,0	> 27,0	> 14,0
			Siltosa			
Baixo	< 9,0	< 5,0	< 3,0	< 2,0	< 7,0	< 3,0
Médio	9,0-26,0	5,0-14,0	3,0-9,0	2,0-5,0	7,0-19,0	3,0-8,0
Alto	> 26,0	> 14,0	> 9,0	> 5,0	> 19,0	> 8,0

Teor em % = teor em g kg^{-1} divido por 10.

Tabela 2. Níveis de C org (g kg^{-1}) nas camadas (cm) e classes texturais do solo sob vegetação natural do **bioma Caatinga**.

Nível	0-10	10-20	20-30	30-40	0-20	20-40
			Arenosa			
Baixo	< 3,0	< 3,0	< 2,0	< 1,0	< 3,0	< 1,0
Médio	3,0-9,0	3,0-9,0	2,0-6,0	1,0-4,0	3,0-9,0	1,0-4,0
Alto	> 9,0	> 9,0	> 6,0	> 4,0	> 9,0	> 4,0
			Média			
Baixo	< 5,0	< 3,0	< 2,0	< 2,0	< 4,0	< 2,0
Médio	5,0-15,0	3,0-10,0	2,0-7,0	2,0-5,0	4,0-12,0	2,0-6,0
Alto	> 15,0	> 10,0	> 7,0	> 5,0	> 12,0	> 6,0
			Argilosa			
Baixo	< 8,0	< 7,0	< 3,0	< 2,0	< 7,0	< 2,0
Médio	8,0-25,0	7,0-21,0	3,0-10,0	2,0-6,0	7,0-22,0	2,0-7,0
Alto	> 25,0	> 21,0	> 10,0	> 6,0	> 22,0	> 7,0

Teor em % = teor em g kg^{-1} divido por 10.

Tabela 3. Níveis de C org (g kg^{-1}) nas camadas (cm) e classes texturais do solo sob vegetação natural do **bioma Cerrado**.

Nível	0-10	10-20	20-30	30-40	0-20	20-40
			Arenosa			
Baixo	< 3,0	< 2,0	< 2,0	< 2,0	< 2,0	< 2,0
Médio	3,0-9,0	2,0-7,0	2,0-6,0	2,0-5,0	2,0-7,0	2,0-5,0
Alto	> 9,0	> 7,0	> 6,0	> 5,0	> 7,0	> 5,0
			Média			
Baixo	< 6,0	< 4,0	<3,0	< 2,0	< 4,0	< 3,0
Médio	6,0-17,0	4,0-12,0	3,0-9,0	2,0-7,0	4,0-15,0	3,0-8,0
Alto	> 17,0	> 12,0	> 9,0	> 7,0	> 15,0	> 8,0
			Argilosa			
Baixo	< 9,0	< 7,0	< 5,0	< 4,0	< 7,0	< 4,0
Médio	9,0-27,0	7,0-21,0	5,0-15,0	4,0-12,0	7,0-23,0	4,0-13,0
Alto	> 27,0	> 21,0	> 15,0	> 12,0	> 23,0	> 13,0
			Muito Argilosa			
Baixo	< 11,0	< 9,0	< 8,0	< 6,0	< 11,0	< 7,0
Médio	11,0-32,0	9,0-28,0	8,0-24,0	6,0-18,0	11,0-30,0	7,0-20,0
Alto	> 32,0	> 28,0	> 24,0	> 18,0	> 30,0	> 20,0

Teor em % = teor em g kg^{-1} divido por 10.

Tabela 4. Níveis de C org (g kg^{-1}) nas camadas (cm) por classes texturais no solo do **bioma Mata Atlântica**.

Nível	0-10	10-20	20-30	30-40	0-20	20-40
			Arenosa			
Baixo	< 5,0	< 3,0	< 2,0	< 1,0	< 4,0	< 2,0
Médio	5,0-15,0	3,0-9,0	2,0-5,0	1,0-3,0	4,0-13,0	2,0-4,0
Alto	> 15,0	> 9,0	> 5,0	> 3,0	> 13,0	> 4,0
			Média			
Baixo	< 7,0	< 4,0	< 4,0	< 3,0	< 6,0	< 3,0
Médio	7,0-20,0	4,0-12,0	4,0-11,0	3,0-8,0	6,0-17,0	3,0-9,0
Alto	> 20,0	> 12,0	> 11,0	> 8,0	> 17,0	> 9,0
			Argilosa			
Baixo	< 12,0	< 9,0	< 6,0	< 5,0	< 10,0	< 5,0
Médio	12,0-36,0	9,0-26,0	6,0-18,0	5,0-14,0	10,0-30,0	5,0-16,0
Alto	> 36,0	> 26,0	> 18,0	> 14,0	> 30,0	> 16,0
			Muito Argilosa			
Baixo	< 14,0	< 11,0	< 9,0	< 7,0	< 12,0	< 7,0
Médio	14,0-42,0	11,0-33,0	9,0-26,0	7,0-20,0	12,0-36,0	7,0-22,0
Alto	> 42,0	> 33,0	> 26,0	> 20,0	> 36,0	> 22,0

Teor em % = teor em g kg^{-1} divido por 10.

Tabela 5. Níveis de C org (g kg^{-1}) nas camadas (cm) e classes texturais do solo sob vegetação natural do **bioma Pantanal**.

Nível	0-10	10-20	20-30	30-40	0-20	20-40
			Arenosa			
Baixo	< 3,0	< 2,0	< 1,0	< 1,0	< 2,0	< 1,0
Médio	3,0-8,0	2,0-5,0	1,0-3,0	1,0-3,0	2,0-6,0	1,0-3,0
Alto	> 8,0	> 5,0	> 3,0	> 3,0	> 6,0	> 3,0
			Média			
Baixo	< 7,0	< 5,0	< 4,0	< 2,0	< 6,0	< 3,0
Médio	7,0-20,0	5,0-15,0	4,0-11,0	2,0-6,0	6,0-19,0	3,0-8,0
Alto	> 20,0	> 15,0	> 11,0	> 6,0	> 19,0	> 8,0
			Argilosa			
Baixo	< 10,0	< 8,0	< 5,0	< 3,0	< 9,0	< 4,0
Médio	10,0-29,0	8,0-23,0	5,0-13,0	3,0-9,0	9,0-27,0	4,0-11,0
Alto	> 29,0	> 23,0	> 13,0	> 9,0	> 27,0	> 11,0

Teor em % = teor em g kg^{-1} divido por 10.

Tabela 6. Níveis de C org (g kg^{-1}) nas camadas (cm) do solo dos biomas sob vegetação natural do **Brasil**.

Nível	0-10	10-20	20-30	30-40	0-20	20-40
			Amazônia			
Baixo	< 8,0	< 5,0	< 4,0	< 3,0	< 7,0	< 4,0
Médio	8,0-25,0	5,0-15,0	4,0-11,0	3,0-9,0	7,0-20,0	4,0-11,0
Alto	> 25,0	> 15,0	> 11,0	> 9,0	> 20,0	> 11,0
			Caatinga			
Baixo	< 5,0	< 4,0	< 3,0	< 2,0	< 4,0	< 2,0
Médio	5,0-15,0	4,0-11,0	3,0-8,0	2,0-6,0	4,0-12,0	2,0-6,0
Alto	> 15,0	> 11,0	> 8,0	> 6,0	> 12,0	> 6,0
			Cerrado			
Baixo	< 6,0	< 5,0	< 4,0	< 3,0	< 5,0	< 3,0
Médio	6,0-18,0	5,0-14,0	4,0-11,0	3,0-9,0	5,0-15,0	3,0-9,0
Alto	> 18,0	> 14,0	> 11,0	> 9,0	> 15,0	> 9,0
			Mata Atlântica			
Baixo	< 9,0	< 6,0	< 4,0	< 4,0	< 8,0	< 4,0
Médio	9,0-26,0	6,0-19,0	4,0-12,0	4,0-11,0	8,0-23,0	4,0-12,0
Alto	> 26,0	> 19,0	> 12,0	> 11,0	> 23,0	> 12,0
			Pampa			
Baixo	< 8,0	< 7,0	< 6,0	< 5,0	< 8,0	< 6,0
Médio	8,0-22,0	7,0-22,0	6,0-19,0	5,0-16,0	8,0-22,0	6,0-18,0
Alto	> 22,0	> 22,0	> 19,0	> 16,0	> 22,0	> 18,0
			Pantanal			
Baixo	< 6,0	< 4,0	< 3,0	< 2,0	< 5,0	< 2,0
Médio	6,0-18,0	4,0-11,0	3,0-7,0	2,0-5,0	5,0-14,0	2,0-6,0
Alto	> 18,0	> 11,0	> 7,0	> 5,0	> 14,0	> 6,0

Teor em % = teor em g kg^{-1} divido por 10.

Tabela 7. Níveis de C org (g kg^{-1}) nas camadas (cm) por classes texturais do solo sob vegetação natural do **Brasil**.

Nível	0-10	10-20	20-30	30-40	0-20	20-40
Arenosa						
Baixo	< 4,0	< 3,0	< 2,0	< 1,0	< 3,0	< 1,0
Médio	4,0-11,0	3,0-8,0	2,0-5,0	1,0-4,0	3,0-9,0	1,0-4,0
Alto	> 11,0	> 8,0	> 5,0	> 4,0	> 9,0	> 4,0
Média						
Baixo	< 7,0	< 5,0	<3,0	< 3,0	< 6,0	< 3,0
Médio	7,0-20,0	5,0-14,0	3,0-9,0	3,0-7,0	6,0-19,0	3,0-9,0
Alto	> 20,0	> 14,0	> 9,0	> 7,0	> 19,0	> 9,0
Argilosa						
Baixo	< 10,0	< 7,0	< 4,0	< 3,0	< 9,0	< 4,0
Médio	10,0-30,0	7,0-20,0	4,0-13,0	3,0-10,0	9,0-25,0	4,0-12,0
Alto	> 30,0	> 20,0	> 13,0	> 10,0	> 25,0	> 12,0
Muito Argilosa						
Baixo	< 12,0	< 9,0	< 6,0	< 5,0	< 12,0	< 6,0
Médio	12,0-36,0	9,0-26,0	6,0-19,0	5,0-15,0	12,0-35,0	6,0-18,0
Alto	> 36,0	> 26,0	> 19,0	> 15,0	> 35,0	> 18,0
Siltosa						
Baixo	< 9,0	< 5,0	< 3,0	< 2,0	< 6,0	< 3,0
Médio	9,0-25,0	5,0-14,0	3,0-10,0	2,0-5,0	6,0-18,0	3,0-10,0
Alto	> 25,0	> 14,0	> 10,0	> 5,0	> 18,0	> 10,0

Teor em % = teor em g kg^{-1} divido por 10.

Tabela 8. Níveis de C org (g kg^{-1}) nas camadas (cm) do solo sob vegetação natural do **Brasil**.

Nível	0-10	10-20	20-30	30-40	0-20	20-40
Baixo	< 8,0	< 5,0	< 4,0	< 3,0	< 6,0	< 4,0
Médio	8,0-23,0	5,0-15,0	4,0-11,0	3,0-9,0	6,0-19,0	4,0-10,0
Alto	> 23,0	> 15,0	> 11,0	> 9,0	> 19,0	> 10,0

Teor em % = teor em g kg^{-1} divido por 10.


Foto: Ademir Fontana

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