

How Much Carbon Is in a Tree?

Metric Units

Directions: Use this table to find a rough estimate of the amount of carbon stored in a tree using the tree's diameter and its height. **The estimated amount of carbon is in kilograms.** Please note that some values are intentionally blank, as trees with the corresponding dimensions are unrealistic.

Diameter (in centimeters)

Tree Height (in meters)	Diameter (in centimeters)																	
	10	15	20	25	30	35	40	45	50	60	70	80	90	100	110	120	130	140
2.0	11	13	16	20	24	29	36	42	51	70	91	116	145	177	212	250	292	338
4.0	13	17	23	30	39	49	63	75	93	131	174	223	281	344	415	491	574	666
6.0	14	20	30	40	54	69	90	108	135	191	256	330	417	511	619	733	856	994
8.0	16	24	36	50	69	89	117	141	177	252	338	437	553	678	822	974	1,139	1,323
10	18	28	43	60	84	109	144	174	218	312	420	544	689	846	1,025	1,215	1,421	1,651
12	19	31	50	70	99	129	171	207	260	373	502	650	824	1,013	1,228	1,456	1,703	1,980
14	—	35	56	81	114	149	198	240	302	433	584	757	960	1,180	1,431	1,697	1,986	2,308
16	—	—	63	91	129	169	225	273	344	494	666	864	1,096	1,347	1,634	1,938	2,268	2,636
18	—	—	—	101	144	189	252	306	386	555	748	971	1,232	1,514	1,837	2,179	2,550	2,965
20	—	—	—	111	159	209	279	339	427	615	830	1,078	1,368	1,682	2,040	2,420	2,833	3,293
22	—	—	—	121	174	229	306	372	469	676	912	1,185	1,504	1,849	2,243	2,661	3,115	3,621
24	—	—	—	132	189	249	332	405	511	736	994	1,292	1,639	2,016	2,446	2,902	3,397	3,950
26	—	—	—	—	204	269	359	438	553	797	1,077	1,399	1,775	2,183	2,649	3,143	3,680	4,278
28	—	—	—	—	—	289	386	471	595	858	1,159	1,505	1,911	2,351	2,852	3,384	3,962	4,606
30	—	—	—	—	—	309	413	504	636	918	1,241	1,612	2,047	2,518	3,055	3,625	4,244	4,935
32	—	—	—	—	—	—	440	537	678	979	1,323	1,719	2,183	2,685	3,258	3,866	4,527	5,263
34	—	—	—	—	—	—	467	570	720	1,039	1,405	1,826	2,319	2,852	3,461	4,107	4,809	5,592
36	—	—	—	—	—	—	494	603	762	1,100	1,487	1,933	2,454	3,019	3,664	4,349	5,091	5,920
38	—	—	—	—	—	—	—	636	804	1,160	1,569	2,040	2,590	3,187	3,867	4,590	5,374	6,248
40	—	—	—	—	—	—	—	669	846	1,221	1,651	2,146	2,726	3,354	4,070	4,831	5,656	6,577
42	—	—	—	—	—	—	—	—	887	1,282	1,733	2,253	2,862	3,521	4,273	5,072	5,938	6,905
44	—	—	—	—	—	—	—	—	929	1,342	1,815	2,360	2,998	3,688	4,476	5,313	6,221	7,233
46	—	—	—	—	—	—	—	—	—	1,403	1,897	2,467	3,134	3,856	4,660	5,554	6,503	7,562
48	—	—	—	—	—	—	—	—	—	1,463	1,980	2,574	3,269	4,023	4,883	5,795	6,786	7,890

These estimates are based on the formula: M_c (mass of carbon in the tree) = $0.5 \times M_w$ (mass of the wood), where $M_w = 0.55 \times V$ (volume of tree) \times D_w (density of wood); $V = 0.0567 \times 0.5074 \times (CBH/M^2 \times H$ (height). It assumes that $D_w = 0.6$ g/cm³, and that water makes up 45 percent of the tree's mass.