

Attachment F - Stump Conversion Table; Diameter to Volume Capacity

The qualification of the cubic yards of debris for each size of stump is the following table was derived from FEMA field studies conducted throughout the State of Florida during the debris removal operations following Hurricane Charley, Frances, Ivan and Jeanne. The following formula is used to derive cubic yards.

$$\frac{[(\text{Stump Diameter}^2 \times 0.7854) \times \text{Stump Length}] + [(\text{Root ball Diameter}^2 \times 0.7854) \times \text{Root Ball Height}]}{46656}$$

0.7854 is one-fourth Pi and is a constant.

46656 is used to convert inches to Cubic Yards and is a constant.

The formula used to calculate the cubic yardage used the following factors, based upon findings in the field:

- Stump diameter measured two feet up from ground
- Stump diameter to root ball diameter ratio of 1:3.6
- Root ball height of 31"

Stump Diameter (inches)	Cubic Yards	Stump Diameter (inches)	Cubic Yards
6	0.3	47	15.8
7	0.4	48	16.5
8	0.5	49	17.2
9	0.6	50	17.9
10	0.7	51	18.6
11	0.9	52	19.4
12	1	53	20.1
13	1.2	54	20.9
14	1.4	55	21.7
15	1.6	56	22.5
16	1.8	57	23.3
17	2.1	58	24.1
18	2.3	59	24.9
19	2.6	60	25.8
20	2.9	61	26.7
21	3.2	62	27.6
22	3.5	63	28.4
23	3.8	64	29.4

24	4.1
25	4.5
26	4.8
27	5.2
28	5.6
29	6
30	6.5
31	6.9
32	7.3
33	7.8
34	8.3
35	8.8
36	9.3
37	9.8
38	10.3
39	10.9
40	11.5
41	12
42	12.6
43	13.3
44	13.9
45	14.5
46	15.2

65	30.3
66	31.2
67	32.2
68	33.1
69	34.1
70	35.1
71	36.1
72	37.2
73	38.2
74	39.2
75	40.3
76	41.4
77	42.5
78	43.6
79	44.7
80	45.9
81	47
82	48.2
83	49.4
84	50.6