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VOLUME TABLES FOR SISSOO, KOROI, AKASHMONI, BABLA, MAHOGANY AND RAIN TREE PLANTED ON EMBANKMENTS AND ROAD SIDES IN THE COASTAL AREAS OF BANGLADESH

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Volume Tables for Sissoo, Koroi, Akashmoni, Babla, Mahogany and Rain Tree Planted on Embankments and Road Sides in the Coastal Areas of Bangladesh

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Introduction

Cyclones and tidal bores along the coastal areas of Bangladesh cause loss of lives and damage to properties almost every year. The damage is comparatively less in the areas where there are tree covers. The Forest Department has, therefore, undertaken a project titled "The Coastal Greenbelt Project" to raise trees along the whole coastal areas to save the lives and properties of the area. Under the project, different species like sissoo (*Dalbergia sissoo*), koroi (*Albizia* sp.), akashmoni (*Acacia auriculiformis*), babla (*A. nilotica*), mahogany (*Swietenia macrophyla*) and rain tree (*Samanea saman*) were planted on the embankments and roadsides of the coastal areas. However, there is no volume tables for the species growing in these areas, and growth rates are not known. But volume tables and estimation of growth rates are necessary for their economic evaluation and future management. Therefore, Bangladesh Forest Research Institute with the financial support of the Coastal Greenbelt Project undertook the present study to fulfill the demand. The present publication presents the volume tables for the above mentioned species planted on the embankments and roadsides in the coastal areas of Bangladesh.

Materials and methods

The plantations raised under the Coastal Greenbelt Project are still too young to forecast the future growth and yield and to prepare volume tables. But there are older plantations of these species on the embankments and roadsides in the area raised under the "Community Forestry Project" and "Thana Banayana and Nursery Unnayan Project". So, we collected necessary data from those plantations along with new plantations raised during this project period.

We selected representative trees for each species and girth at breast height (gbh) classes at random. First, we measured the gbh and total heights of the standing trees. Then we felled the trees leaving 6 to 10 cm stump, and we measured the girths of felled tree at one meter intervals. We removed a small sample of bark from each point of girth measurements and measured the bark thickness to estimate the underbark girth. It was not possible to fell all the trees due to unavoidable circumstances. Therefore, we also collected data from standing trees. For the selected standing trees we hold a bamboo marked at one meter intervals. Then we measured the girths at one meter intervals and bark thickness by climbing on the trees with ladders. We collected data from a total of 1065 trees for the preparation of volume tables of the six important species. We ranked the number of stems measured for growth estimation in descending order. We selected the six species which had maximum number of stems as the important species. The gbh-height class distribution of the sample trees are given in Table 1.

Compilation of data : We computed volumes of all the sections except top section by using the mean cross-sectional areas of the two ends of each section (Smallian formula). We assumed the top section cone and computed volume as one-third of the cylindrical volume of the portion. We considered the top end diameter measurement for each tree as the base diameter of the cone. We ignored the volume of the cone for estimation of underbark tree volume. We estimated the individual tree volume by summing up the volume of each section of a tree. We used regression techniques to relate these individual tree volumes (V) to gbh (G) and total height (H) using various functions and transformations as required in the models.

We used the following original and trasformed variables to select the best suited regression models :

Dependent variables : V, Log (V), V/G^2 and V/G^2H

Independent variables : G, G^2, H^2, G^2H, GH, Log(G), Log(H), $1/G^2$, $1/G$, $1/G^2H$, H/G^2, H/G.

The above mentioned dependent variables were regressed with the independent variables.

Computation of volume function : We did multiple regression analyses to select the best suited equations. We tried the following 15 models to select the equation of best fit with different variables as follows :

1. $V = a + bG$
2. $V = a + bG + cG^2$
3. $V = a + bG^2$
4. $V = a + bG^2H$
5. $V = a + bG^2 + cH + dG^2H$
6. $V = a + bG^2 + cGH + dG^2H$
7. $\ln (V) = a + b \ln(G)$
8. $\ln (V) = a + b \ln(G) + c \ln(H)$
9. $V/G^2 = a + b/G^2 + c/G$
10. $V/G^2 = a + b/G$
11. $V/G^2H = a + b/G^2H$
12. $V/G^2H = a + b/G^2 + cH/G^2 + GH$
13. $V/G^2h = a + b/G^2H + c/H + d/G^2$
14. $V/G^2 = a + b/G^2 + cH/G + dH$
15. $V/G^2H = a + b/G^2H + c/H + d/G$

where , V = Total volume overbark in cubic meters,

G = Girth at breast height in cm,

H = Total height in meters

a = Regression constant, b, c and dregression coefficients. The logarithmic functions are to t basee.

We have chosen the equations of the fit based on the highest multiple coefficie determination, significant F-ratio and lo residual mean square. We have selected m for estimation of the total volume overbark conversion factors to estimate under volumes to a top end diameters of app mately 5, 10, 15 and 20 cm overbark.

Validation test procedure : The selected models for all the six species tested with a set of independent data trees for each species collected and compil the same procedure. The actual volum these trees were collectively compared wit corresponding volumes predicted by selected models. The independent test validation criteria were :

(1) The paired t-test :

$t = |\Sigma(A-E)/n|$ (Dawkins 1975)

With n-1 degrees of freedom at 0.05 level.

(2) Chi-square test :

$\chi^2 = \Sigma(A-E)^2/E$

With n-1 degrees of freedom at 0.05 level

(3) Percent Absolute Deviation (% AD)

$\% AD = |\Sigma(A-E)|/\Sigma A x100$

where, A = Actual volume.

E = Estimated volume.

Results and discussions

We selected volume equations for mation of total volume overbark. Conve factors were also selected to estimate unde volume to top end diameter of approxim 5, 10, 15 and 20 cm overbark. The sel volume equations and conversion factor given in Table 2.

Results of validation : The values of the test statistics are summarized below.

Species	t	t	% AD	% AD	Chi-square	Chi-square
	Model-1	Model-2	Model-1	Model-2	Model-1	Model-2
Akashmoni	0.1205	0.0075	6.4982	0.4021	0.3099	0.2368
Babla	0.0564	0.0068	2.6340	0.3176	0.6935	0.4235
Koroi	0.0505	0.0271	0.8575	0.4600	2.5710	1.4578
Mahogany	0.1179	0.0550	3.6146	1.6871	1.7617	1.8704
Rain tree	0.5312	0.2912	8.3017	4.5514	2.9789	1.7518
Sissoo	1.1374	1.3255	4.4791	7.8109	3.4393	2.4690

The calculated paired t and chi-square values are less than the tabular values ($t_{0.05,29}$=2.045, $\chi^2_{0.05,29}$=42.6). The absolute deviation percent (% AD) is also less than 10%. Hence, statistically there is no significant difference among the calculated and estimated volumes. Therefore, the selected models can safely be used for estimation of the volumes of all the six species planted on embankments and along roadsides in the coastal areas of Bangladesh.

GBH-Basal Girth (BG) Relationships : Sometimes the trees are removed without recording the girth at breast height (GBH) and total height. Then, it is not possible to estimate the volumes of the removed trees. But it is necessary to have the estimates of volumes of the removed trees to have an account of the harvest from the plantations. The stump girths can be measured while the stumps are still there after removal of the trees. Therefore, GBH and stump girth (basal girth at about 15 cm above ground level) were established to estimate the gbh of the removed trees first followed by the estimation of the volume of the removed trees. The GBH and stump girth (BG) of the six species are given below :

Koroi	GBH = - 0.8028 + 0.79396*BG	R^2 = 0.955
Mahogany	GBH = - 3.213S7 + 0.80453*BG	R^2 = 0.972
Raintree	GBH = - 1.39177 + 0.8114*BG	R^2 = 0.980
Sissoo	GBH = - 0.70 + 0.78141*BG	R^2 = 0.976
Akashmoni	GBH = - 3.78893 + 0.836316*BG	R^2 = 0.976
Babla	GBH = - 2.04655 + 0.88228*BG	R^2 = 0.984

We estimated volume for ready use and are presented in Tables 3-15. The volume equations and the Tables are applicable for sissoo (*Dalbergia sissioo*), koroi (*Albizia* sp.), akashmoni (*Acacia auriculiformis*), babla (*A. nilotica*) mahogany (*Swietenia macrophyla*) and rain tree (*Samanea saman*) planted on the embankments and roadsides of the coastal districts of Bagerhat, Pirojpur, Barguna, Patuakhali, Barisal, Bhola, Laxmipur, Noakhali, Feni, Chittagong and Cox's Bazar.

Confidence limit : These volume tables should not be used to estimate volumes of individual trees in a stand. These tables may be used for the mean tree of a stand which may be multiplied by the number of stems to get the total volume of the stand. Estimation of volumes for the trees outside the height and gbh ranges shown in the stand table should only be done with caution.

How to use volume tables and conversion factors

Take the measurements of girth(s) at breast height and total height(s) of the desired tree(s) first to have an estimate of the volume. Then, choose the corresponding total volume overbark from the volume tables or estimate the total overbark volume by using the volume equation of the selected species and convert this total overbark volume to underbark volume for desired top end diameter limit. For example, let the girth and height of the selected mahogany tree are 66 cm and 14 m respectively. Then, the total volume for this mahogany tree is:

$$\begin{aligned} \log(V) &= -12.4361459 + 1.8661846 \\ &\quad \log(G) + 1.2282822 \log(H) \\ &= -12.4361459 + 1.8661846 \log(66) \\ &\quad + 1.2282822 \log(14) \\ &= -1.37597 \\ V &= \text{Exp.} (\log(V) = 0.2526 \end{aligned}$$

Multiply this total volume overbark with the corresponding conversion factor to estimate the underbark volume to different top end diameter limits. For examples, underbark volume (Vub) will be estimated as given below :

$$\begin{aligned} Vub &= V \times Fub = 0.2526 \times 0.9265 \\ &= 0.234 \text{ cum.} \end{aligned}$$

Similarly, underbark volume up to top end diameters of 5 cm (girth = 15.7 cm) and 10 cm (girth = 31.4 cm) may be estimated as given below :

$$\begin{aligned} V5 &= V \times F5 = 0.2528 \times 0.9061 \\ &= 0.2289 \text{ cu. m.} \end{aligned}$$

$$\begin{aligned} V10 &= V \times F10 = 0.2526 \times 0.6094 \\ &= 0.1539 \text{ cu. m.} \end{aligned}$$

If the measured gbh and total height coincides with the tabular gbh and total height then the tabular values may only be used directly. Otherwise, the volumes and conversion factors should be estimated first by using the respective equations followed by estimation of desired volume as given above. The one-way volume tables (GBH-volume tables and equations) may similarly be used.

References

Cox, F. 1994. Volume functions for plantation species and elements for growth. Document No. 2. FAO, Rome. 60 pp.

Dawkins, H. C. 1975. *Statforms*. Department of Forestry, University of Oxford. 5 pp.

Table 1. Grith at breast height and total height class distribution of sample trees measured for estimation of volume for **SISSOO, MAHOGANY, KOROI, AKASHMONI, BABLA AND RAIN TREE** planted on the roadsides and embankments in the coastal areas of Bangladesh.

Species	GBH (cm)	Height class in meters									
		5	7	9	11	13	15	17	19	21	Total
Akashmoni	25	15	2								17
	35	7	11								18
	45		10	7	6	2					25
	55		4	4	8						16
	65			4	5	2					11
	75				4	1	1				6
	85			1	1	6	1				9
	95				2	4	1		1		8
	105					2	1				3
	115					5	1	1			7
	125					1	3				4
	Total	22	27	16	26	23	8	1	1		124
Koroi	25	1									1
	35	5	7	1							13
	45	1	7	4							12
	55		6	2	1						9
	65		4	6	9	1					20
	75		1		6	4	1	2			14
	85				10	4	2				16
	95			1	3	2	5	2			13
	105					5	4	2	1		12
	115					8	11	1	3		23
	125				1	4	6	2		1	14
	135					6	4				10
	145					2	6				8
	155						4	1	1	1	7
	165							3	1	2	6
	Total	7	25	14	30	36	43	13	6	4	178
Mahogany	25	18	17								35
	35	6	18	8							32
	45	1	4	13							18
	55	1	6	9	5	3					24
	65			5	5	1					11
	75			4	8	2	2				16
	85			3	7	14	5				29
	95			3	6	3					12
	105			1	2	4	10				17
	115					1	7	4			12
	125					1	8	2			11
	135				1	5	3				9
	145				1	6	4	1			12
	155					1	3				4
	165					2	1				3
	Total	26	45	46	35	43	43	7			245

Table 1. Continued.

Species	GBH (cm)	Height class in meters									
		5	7	9	11	13	15	17	19	21	Total
Sissoo	25	2	3	1	1						7
	35	5	9	5	2						21
	45		5	11	6	3	1				26
	55				9	8	7				24
	65		1	6	8	7	8	1			31
	75			1	5	7	11	2			26
	85			1	1		12	4			18
	95					2	5	4	2		13
	105					2	4	2	2		10
	115					2	3		1	2	8
	125					3	2	4	3		12
	135						1	1	1		3
	145						1	1	1		3
	Total	7	18	25	32	34	55	19	10	2	202
Babla	25	1									1
	35	3	8	8	1						20
	45			17	3						20
	55	1	2	5	10						18
	65		3	3	7	1					14
	75				4	7	2				13
	85			1	5	4	1				11
	95			1	6	2					9
	105			3	2	1	1				7
	115				6	7		2			15
	Total	5	13	38	44	22	4	2			128
Rain tree	25	10	1	1							11
	35	7	1	2							10
	45	2	7	5	1						15
	55	3	7	2	2	3					17
	65		2	3	3	3	1				12
	75			4	5	2	1				12
	85		1		5	4	1				11
	95			2	6	3					11
	105			3	3	4	2				12
	115			1	3	6					10
	125				1	6	3	1			11
	135				3	3	5	1			12
	145				1	7	1				9
	155				3	1	6	1			11
	165						1	1			2
	175					2	1				3
	185					2	3				5
	195					4					4
	205				1	5	4				10
	Total	22	18	23	37	55	29	4			188

Table 2. Volume and converion factor models for estimation of volume up to different to send diameters for **SISSOO, MAHOGANY, KOROI, AKASHMONI, BABLA AND RAIN TREE** planted on the roadsides and embankments in the coastal areas of Bangladesh.

Species	Volume/conversion equations	R^2	No. of observations
Akashmoni	log(V) = -11.839665 + 2.404568*log (G)	0.973	124
	log(V) = -11.506528+1.973377*log(G)+0.623823*log(H)	0.979	124
	Fub=G/(10.14316785+0.887876*G+0.0007408*G²)	0.991	124
	F5=G/(14.1548988+0.93206806*G+0.00061086*G²)	0.983	124
	F10= -0.2080896+0.02051161*G-0.00009592*G² 0.8869 is constant from gbh 114 cm	0.814	108
	F15=-0.75195615+0.02602414*G-0.00010886*G² 0.8034 is constant from gbh 120 cm	0.857	83
	F20=-1.3170613+0.0271059*G-0.0000902*G²	0.856	51
Mahogany	log(V)= -12.52620808+2.5653795*log(G)	0.942	245
	log(V)= -12.4361459+1.8661846*log(G)+1.2282822*log(H)	0.960	245
	Fub= G/(12.2255598+0.834757*G+0.0008996*G²) 0.9574 is contant from gbh 117 cm	0.996	245
	F5= G/(11.1197969+0.8596949*G+0.001144*G²) constant after 100 cm gbh (0.9214)	0.980	245
	F10= -0.2221803+0.0170416*G-0.0000673*G²	0.804	222
	F15= -0.4795166+0.0161686*G-0.0000527*G²	0.775	177
	F20= -0.5048475+0.0126964*G-0.0000316*G²	0.672	138
Koroi	log(V)= -12.8715358+2.6994968*log(G)	0.929	178
	log(V)= -12.4+1.7131*log(G)+1.58245*log(H)	0.967	178
	Fub= G/(8.2005596+0.9405175*G+0.0003273*G²)	0.999	178
	F5= G/(14.7539854+0.9554005*G+0.0005282*G²)	0.991	178
	F10= 1.0865688-28.5099263/G	0.844	173
	F15= 1.1510961-49.8337744/G	0.810	152
	F20= -0.9534501+0.0198877*G-0.0000573*G²	0.831	142
Sissoo	log(V)= -12.427775+2.6056676*log(G)	0.902	202
	log(V) = -12.5189939+1.9800535*log(G)+1.0775148*log(H)	0.934	202
	Fub= G/(8.2660565+0.952099*G+0.0002453*G²)	0.995	202
	F5= G/(10.3502791+1.1634831*G-0.0007935*G²)	0.979	202
	F10= -0.41985+0.028034*G-0.000157*G² 0.8315 is constant after gbh 90 cm	0.805	
	F15= -1.2178+0.03933*G-0.000195*G² 0.7651 is constant after gbh 100 cm	0.854	
	F20= -1.5982+0.03884*G-0.0001644*G² 0.6956 is constant after gbh 117 cm	0.830	193
Babla	log(V)= -11.2782859+2.34743*log(G)	0.910	128
	log(V)= -11.875835+1.8823999*log(G)+1.0819988*log(H)	0.910	128
	Fub= G/(6.7308322+0.9248798*G+0.0005741*G²)	0.997	128
	F5= G/(8.7785999+1.0200141*G+0.0003543*G²)	0.987	128
	F10= -0.49322+0.0262412*G-0.0001275*G²	0.771	120
	F15= -1.0759925+0.0311006*G-0.0001346*G²	0.766	93
	F20= -1.3170613+0.0271059*G-9.000002*G²	0.714	59
Rain tree	log(V)= -12.287524+2.5086408*log(G)	0.952	190
	log(V)= -12.3213818+1.8912934*log(G)+1.183443*log(H)	0.974	190
	Fub= G/(11.4831022+0.9321882*G+0.0002577*G²)	0.996	190
	F5=G/(16.1036268+1.0084875*G+0.0001823*G²)	0.987	190
	F10= G/(68.6872892+0.362527*G+0.0021786*G²)	0.910	173
	F15= -0.4321178+0.0145722*G-0.000011*G²	0.842	163
	F20= -0.6798156+0.0153724*G-0.000001*G²	0.775	137

Table 3. Total volume overbark (one way) in cubic meters for **SISSOO, MAHOGANY, KOROI, AKASHMONI, BABLA AND RAIN TREE** planted on the roadsides and embankments in the coastal areas of Bangladesh.

GBH (cm)	Volumes in cubic meters for the species											
	Sissoo		Mahogany		Koroi		Akashmoni		Babla		Rain Tree	
	BG(cm)	Volume	BG(cm)	Volume	BG(cm)	Volume	BG(cm)	Volume	BG(cm)	Volume	BG(cm)	Volume
15	20.1	0.0046	22.6	0.0038	19.9	0.0038	22.5	0.0049	19.3	0.0073	20.2	0.0041
18	23.9	0.0075	26.4	0.0060	23.7	0.0063	26.1	0.0075	22.7	0.0112	23.9	0.0065
21	27.8	0.0112	30.1	0.0090	27.5	0.0095	29.6	0.0109	26.1	0.0161	27.6	0.0096
24	31.6	0.0158	33.8	0.0126	31.2	0.0137	33.2	0.0150	29.5	0.0220	31.3	0.0134
27	35.4	0.0215	37.6	0.0171	35.0	0.0188	36.8	0.0199	32.9	0.0290	35.0	0.0180
30	39.3	0.0283	41.3	0.0224	38.8	0.0250	40.4	0.0257	36.3	0.0371	38.7	0.0234
33	43.1	0.0363	45.0	0.0285	42.6	0.0323	44.0	0.0323	39.7	0.0464	42.4	0.0297
36	47.0	0.0455	48.7	0.0357	46.4	0.0409	47.6	0.0398	43.1	0.0569	46.1	0.0370
39	50.8	0.0560	52.5	0.0438	50.1	0.0507	51.2	0.0483	46.5	0.0687	49.8	0.0452
42	54.6	0.0680	56.2	0.0530	53.9	0.0619	54.8	0.0577	49.9	0.0817	53.5	0.0544
45	58.5	0.0814	59.9	0.0632	57.7	0.0746	58.3	0.0681	53.3	0.0961	57.2	0.0647
48	62.3	0.0963	63.7	0.0746	61.5	0.0888	61.9	0.0796	56.7	0.1118	60.9	0.0761
51	66.2	0.1127	67.4	0.0872	65.2	0.1046	65.5	0.0921	60.1	0.1289	64.6	0.0886
54	70.0	0.1308	71.1	0.1010	69.0	0.1221	69.1	0.1056	63.5	0.1474	68.3	0.1022
57	73.8	0.1506	74.8	0.1160	72.8	0.1412	72.7	0.1203	66.9	0.1674	72.0	0.1171
60	77.7	0.1722	78.6	0.1332	76.6	0.1622	76.3	0.1361	70.3	0.1888	75.7	0.1331
63	81.5	0.1955	82.3	0.1499	80.4	0.1850	79.9	0.1530	73.7	0.2117	79.4	0.1505
66	85.4	0.2207	86.0	0.1689	84.1	0.2098	83.4	0.1711	77.1	0.2361	83.1	0.1691
69	89.2	0.2478	89.8	0.1894	87.9	0.2366	87.0	0.1904	80.5	0.2621	86.8	0.1891
72	93.0	0.2769	93.5	0.2112	91.7	0.2654	90.6	0.2110	83.9	0.2896	90.5	0.2104
75	96.9	0.3079	97.2	0.2345	95.5	0.2963	94.2	0.2327	87.3	0.3188	94.1	0.2331
78	100.7	0.3411	100.9	0.2593	99.3	0.3294	97.8	0.2557	90.7	0.3495	97.8	0.2571
81	104.6	0.3763	104.7	0.2857	103.0	0.3647	101.4	0.2800	94.1	0.3819	101.5	0.2827
84	108.4	0.4137	108.4	0.3136	106.8	0.4023	105.0	0.3056	97.5	0.4159	105.2	0.3097
87	112.2	0.4533	112.1	0.3432	110.6	0.4423	108.6	0.3325	100.9	0.4516	108.9	0.3382
90	116.1	0.4952	115.9	0.3744	114.4	0.4847	112.1	0.3608	104.3	0.4890	112.6	0.3682
93	119.9	0.5394	119.6	0.4072	118.1	0.5295	115.7	0.3903	10.7.7	0.5282	116.3	0.3998
96	123.8	0.5859	123.3	0.4418	121.9	0.5769	119.3	0.4213	111.1	0.5690	120.0	0.4329
99	127.6	0.6348	127.0	0.4781	125.7	0.6269	122.9	0.4537	114.5	0.6117	123.7	0.4677
102	131.4	0.6862	130.8	0.5161	129.5	0.6795	126.5	0.4874	117.9	0.6561	127.4	0.5040
105	135.3	0.7400	134.5	0.5560	133.3	0.7348	130.1	0.5226	121.3	0.7023	131.1	0.5420
108	139.1	0.7964	138.2	0.5976	137.0	0.7928	133.7	0.5592	124.7	0.7503	134.8	0.5817
111	142.9	0.8553	142.0	0.6412	140.8	0.8537	137.3	0.5973	128.1	0.8001	138.5	0.6231
114	146.8	0.9168	145.7	0.6866	144.6	0.9174	140.8	0.6369	131.5	0.8518	142.2	0.6662
117	150.6	0.9810	149.4	0.7339	148.4	0.9841	144.4	0.6779	134.9	0.9054	145.9	0.7111
120	154.5	1.0480	153.1	0.7831	152.2	1.0537	148.0	0.7205	138.3	0.9608	149.6	0.7577
123	158.3	1.1176	156.9	0.8343	155.9	1.1263	151.6	0.7646	141.7	1.0181	153.3	0.8062
126	162.1	1.1900	160.6	0.8875	159.7	1.2020	155.2	0.8102	145.1	1.0774	157.0	0.8564
129	166.0	1.2653	164.3	0.9428	163.5	1.2808	158.8	0.8573	148.5	1.1386	160.7	0.9085
132	169.8	1.3434	168.1	1.0000	167.3	1.3628	162.4	0.9061	151.9	1.2017	164.4	0.9624
135	173.7	1.4244	171.8	1.0594	171.0	1.4481					168.1	1.0182
138	177.5	1.5083	175.5	1.1208	174.8	1.5366					171.8	1.0759
141	181.3	1.5953	179.3	1.1844	178.6	1.6284					175.5	1.1356
144	185.2	1.6852	183.0	1.2501	182.4	1.7237					179.2	1.1972
147	189.0	1.7783	186.7	1.3180	186.2	1.8223					182.9	1.2607
150	192.9	1.8744	190.4	1.3882	189.9	1.9245					186.6	1.3263

Table 4. Total volumes overbark in cubic meters for **AKASHMONI** planted on the roadsides and embankments in the coastal areas of Bangladesh.

GBH (cm)	BG (cm)	Volume in cubic meters for the height in meters													
		5	6	7	8	9	10	11	12	13	14	15	16	17	18
15	22.5	0.0058	0.0064	0.0071	0.0077	0.0083	0.0089								
18	26.1	0.0082	0.0092	0.0102	0.0110	0.0119	0.0127								
21	29.6	0.0112	0.0125	0.0138	0.0150	0.0161	0.0172								
24	33.2	0.0145	0.0163	0.0179	0.0195	0.0210	0.0224								
27	36.8	0.0183	0.0206	0.0226	0.0246	0.0265	0.0283								
30	40.4	0.0226	0.0253	0.0279	0.0303	0.0326	0.0348	0.0369	0.0390	0.0410	0.0429				
33	44.0	0.0273	0.0305	0.0336	0.0365	0.0393	0.0420	0.0446	0.0471	0.0495	0.0518				
36	47.6	0.0324	0.0363	0.0399	0.0434	0.0467	0.0499	0.0529	0.0559	0.0587	0.0615				
39	51.2	0.0379	0.0425	0.0467	0.0508	0.0547	0.0584	0.0620	0.0654	0.0688	0.0720				
42	54.8	0.0439	0.0491	0.0541	0.0588	0.0633	0.0676	0.0717	0.0757	0.0796	0.0834				
45	58.3	0.0503	0.0563	0.0620	0.0674	0.0725	0.0774	0.0822	0.0868	0.0912	0.0955				
48	61.9	0.0571	0.0640	0.0704	0.0765	0.0824	0.0880	0.0934	0.0986	0.1036	0.1085				
51	65.5	0.0643	0.0721	0.0794	0.0863	0.0928	0.0991	0.1052	0.1111	0.1168	0.1223				
54	69.1	0.0720	0.0807	0.0888	0.0966	0.1039	0.1110	0.1178	0.1244	0.1307	0.1369	0.1429	0.1488	0.1545	0.1601
57	72.7	0.0801	0.0898	0.0988	0.1074	0.1156	0.1235	0.1310	0.1384	0.1454	0.1523	0.1590	0.1656	0.1719	0.1782
60	76.3	0.0887	0.0994	0.1094	0.1189	0.1279	0.1366	0.1450	0.1531	0.1609	0.1685	0.1760	0.1832	0.1902	0.1972
63	79.9	0.0976	0.1094	0.1204	0.1309	0.1409	0.1504	0.1597	0.1686	0.1772	0.1856	0.1937	0.2017	0.2095	0.2171
66	83.4	0.1070	0.1199	0.1320	0.1435	0.1544	0.1649	0.1750	0.1848	0.1942	0.2034	0.2124	0.2211	0.2296	0.2380
69	87.0	0.1168	0.1309	0.1441	0.1566	0.1686	0.1800	0.1911	0.2017	0.2120	0.2221	0.2318	0.2414	0.2507	0.2598
72	90.6	0.1271	0.1424	0.1567	0.1704	0.1833	0.1958	0.2078	0.2194	0.2306	0.2415	0.2522	0.2625	0.2726	0.2825
75	94.2	0.1377	0.1543	0.1699	0.1847	0.1987	0.2122	0.2252	0.2378	0.2500	0.2618	0.2733	0.2845	0.2955	0.3062
78	97.8	0.1488	0.1667	0.1836	0.1995	0.2147	0.2293	0.2434	0.2569	0.2701	0.2829	0.2953	0.3074	0.3193	0.3309
81	101.4	0.1603	0.1796	0.1978	0.2149	0.2313	0.2470	0.2622	0.2768	0.2910	0.3047	0.3181	0.3312	0.3440	0.3565
84	105.0			0.2125	0.2309	0.2485	0.2654	0.2817	0.2974	0.3126	0.3274	0.3418	0.3558	0.3696	0.3830
87	108.6			0.2277	0.2475	0.2664	0.2844	0.3019	0.3187	0.3350	0.3509	0.3663	0.3814	0.3961	0.4104
90	112.1			0.2435	0.2646	0.2848	0.3041	0.3228	0.3408	0.3582	0.3752	0.3917	0.4077	0.4235	0.4388
93	115.7			0.2597	0.2823	0.3038	0.3245	0.3443	0.3635	0.3822	0.4002	0.4178	0.4350	0.4518	0.4682
96	119.3			0.2765	0.3005	0.3235	0.3454	0.3666	0.3870	0.4069	0.4261	0.4449	0.4631	0.4810	0.4984
99	122.9			0.2938	0.3194	0.3437	0.3671	0.3896	0.4113	0.4323	0.4528	0.4727	0.4921	0.5111	0.5296
102	126.5				0.3387	0.3646	0.3893	0.4132	0.4362	0.4586	0.4803	0.5014	0.5220	0.5421	0.5618
105	130.1				0.3587	0.3860	0.4123	0.4375	0.4619	0.4856	0.5985	0.5309	0.5527	0.5740	0.5949
108	133.7				0.3792	0.4081	0.4358	0.4625	0.4883	0.5133	0.5376	0.5613	0.5843	0.6068	0.6289
111	137.3				0.4003	0.4308	0.4600	0.4882	0.5155	0.5418	0.5675	0.5924	0.6168	0.6406	0.6638
114	140.8				0.4219	0.4541	0.4849	0.5146	0.5433	0.5711	0.5981	0.6245	0.6501	0.6752	0.6997
117	144.4				0.4441	0.4779	0.5104	0.5417	0.5719	0.6012	0.6296	0.6573	0.6843	0.7107	0.7365
120	148.0					0.5024	0.5365	0.5694	0.6012	0.6320	0.6619	0.6910	0.7194	0.7471	0.7742
123	151.6					0.5275	0.5633	0.5979	0.6312	0.6635	0.6949	0.7255	0.7553	0.7844	0.8129
126	155.2					0.5532	0.5908	0.6270	0.6619	0.6958	0.7288	0.7608	0.7921	0.8226	0.8525
129	158.8					0.5795	0.6189	0.6568	0.6934	0.7289	0.7634	0.7970	0.8297	0.8617	0.8930
132	162.4					0.6064	0.6476	0.6873	0.7256	0.7627	0.7988	0.8340	0.8682	0.9017	0.9344

Table 5. Conversion factors to estimate the underbark volumes up to different top end diameters fo **AKASHMONI** planted on the roadsides and embankments in the coastal areas of Bangladesh.

GBH (cm)	BG (cm)	Fub	F5	F10	F15	F20
15	22.5	0.6348	0.5305			
18	26.1	0.6827	0.5782			
21	29.6	0.7213	0.6177			
24	33.2	0.7528	0.6508			
27	36.8	0.7791	0.6790	0.2758		
30	40.4	0.8012	0.7031	0.3209		
33	44.0	0.8199	0.7240	0.3643		
36	47.6	0.8359	0.7423	0.4060		
39	51.2	0.8497	0.7582	0.4460		
42	54.8	0.8617	0.7724	0.4842		
45	58.3	0.8721	0.7849	0.5207	0.1987	
48	61.9	0.8813	0.7960	0.5555	0.2464	
51	65.5	0.8893	0.8060	0.5885	0.2921	
54	69.1	0.8963	0.8149	0.6198	0.3359	
57	72.7	0.9025	0.8229	0.6494	0.3777	
60	76.3	0.9080	0.8301	0.6773	0.4176	
63	79.9	0.9128	0.8367	0.7034	0.4555	
66	83.4	0.9170	0.8426	0.7278	0.4914	0.0790
69	87.0	0.9208	0.8479	0.7505	0.5254	0.1238
72	90.6	0.9241	0.8528	0.7715	0.5575	0.1670
75	94.2	0.9271	0.8572	0.7907	0.5875	0.2085
78	97.8	0.9296	0.8612	0.8082	0.6156	0.2484
81	101.4	0.9319	0.8648	0.8240	0.6418	0.2867
84	105.0	0.9338	0.8681	0.8381	0.6660	0.3234
87	108.6	0.9355	0.8711	0.8504	0.6882	0.3584
90	112.1	0.9370	0.8739	0.8610	0.7085	0.3918
93	115.7	0.9382	0.8764	0.8699	0.7268	0.4236
96	119.3	0.9393	0.8786	0.8770	0.7431	0.4538
99	122.9	0.9401	0.8807	0.8824	0.7575	0.4824
102	126.5	0.9408	0.8825	0.8861	0.7699	0.5093
105	130.1	0.9414	0.8842	0.8881	0.7804	0.5346
108	133.7	0.9418	0.8857	0.8884	0.7889	0.5583
111	137.3	0.9421	0.8870	0.8869	0.7955	0.5803
114	140.8	0.9422	0.8882	0.8869	0.8001	0.6008
117	144.4	0.9423	0.8893	0.8869	0.8027	0.6196
120	148.0	0.9422	0.8902	0.8869	0.8034	0.6368
123	151.6	0.9421	0.8910	0.8869	0.8034	0.6523
126	155.2	0.9419	0.8918	0.8869	0.8034	0.6663
129	158.8	0.9416	0.8924	0.8869	0.8034	0.6786
132	162.4	0.9412	0.8929	0.8869	0.8034	0.6893

Table 4. Total volumes overbark in cubic meters for **AKASHMONI** planted on the roadsides and embankments in the coastal areas of Bangladesh.

GBH (cm)	BG (cm)	Volume in cubic meters for the height in meters													
		5	6	7	8	9	10	11	12	13	14	15	16	17	18
15	22.5	0.0058	0.0064	0.0071	0.0077	0.0083	0.0089								
18	26.1	0.0082	0.0092	0.0102	0.0110	0.0119	0.0127								
21	29.6	0.0112	0.0125	0.0138	0.0150	0.0161	0.0172								
24	33.2	0.0145	0.0163	0.0179	0.0195	0.0210	0.0224								
27	36.8	0.0183	0.0206	0.0226	0.0246	0.0265	0.0283								
30	40.4	0.0226	0.0253	0.0279	0.0303	0.0326	0.0348	0.0369	0.0390	0.0410	0.0429				
33	44.0	0.0273	0.0305	0.0336	0.0365	0.0393	0.0420	0.0446	0.0471	0.0495	0.0518				
36	47.6	0.0324	0.0363	0.0399	0.0434	0.0467	0.0499	0.0529	0.0559	0.0587	0.0615				
39	51.2	0.0379	0.0425	0.0467	0.0508	0.0547	0.0584	0.0620	0.0654	0.0688	0.0720				
42	54.8	0.0439	0.0491	0.0541	0.0588	0.0633	0.0676	0.0717	0.0757	0.0796	0.0834				
45	58.3	0.0503	0.0563	0.0620	0.0674	0.0725	0.0774	0.0822	0.0868	0.0912	0.0955				
48	61.9	0.0571	0.0640	0.0704	0.0765	0.0824	0.0880	0.0934	0.0986	0.1036	0.1085				
51	65.5	0.0643	0.0721	0.0794	0.0863	0.0928	0.0991	0.1052	0.1111	0.1168	0.1223				
54	69.1	0.0720	0.0807	0.0888	0.0966	0.1039	0.1110	0.1178	0.1244	0.1307	0.1369	0.1429	0.1488	0.1545	0.1601
57	72.7	0.0801	0.0898	0.0988	0.1074	0.1156	0.1235	0.1310	0.1384	0.1454	0.1523	0.1590	0.1656	0.1719	0.1782
60	76.3	0.0887	0.0994	0.1094	0.1189	0.1279	0.1366	0.1450	0.1531	0.1609	0.1685	0.1760	0.1832	0.1902	0.1972
63	79.9	0.0976	0.1094	0.1204	0.1309	0.1409	0.1504	0.1597	0.1686	0.1772	0.1856	0.1937	0.2017	0.2095	0.2171
66	83.4	0.1070	0.1199	0.1320	0.1435	0.1544	0.1649	0.1750	0.1848	0.1942	0.2034	0.2124	0.2211	0.2296	0.2380
69	87.0	0.1168	0.1309	0.1441	0.1566	0.1686	0.1800	0.1911	0.2017	0.2120	0.2221	0.2318	0.2414	0.2507	0.2598
72	90.6	0.1271	0.1424	0.1567	0.1704	0.1833	0.1958	0.2078	0.2194	0.2306	0.2415	0.2522	0.2625	0.2726	0.2825
75	94.2	0.1377	0.1543	0.1699	0.1847	0.1987	0.2122	0.2252	0.2378	0.2500	0.2618	0.2733	0.2845	0.2955	0.3062
78	97.8	0.1488	0.1667	0.1836	0.1995	0.2147	0.2293	0.2434	0.2569	0.2701	0.2829	0.2953	0.3074	0.3193	0.3309
81	101.4	0.1603	0.1796	0.1978	0.2149	0.2313	0.2470	0.2622	0.2768	0.2910	0.3047	0.3181	0.3312	0.3440	0.3565
84	105.0			0.2125	0.2309	0.2485	0.2654	0.2817	0.2974	0.3126	0.3274	0.3418	0.3558	0.3696	0.3830
87	108.6			0.2277	0.2475	0.2664	0.2844	0.3019	0.3187	0.3350	0.3509	0.3663	0.3814	0.3961	0.4104
90	112.1			0.2435	0.2646	0.2848	0.3041	0.3228	0.3408	0.3582	0.3752	0.3917	0.4077	0.4235	0.4388
93	115.7			0.2597	0.2823	0.3038	0.3245	0.3443	0.3635	0.3822	0.4002	0.4178	0.4350	0.4518	0.4682
96	119.3			0.2765	0.3005	0.3235	0.3454	0.3666	0.3870	0.4069	0.4261	0.4449	0.4631	0.4810	0.4984
99	122.9			0.2938	0.3194	0.3437	0.3671	0.3896	0.4113	0.4323	0.4528	0.4727	0.4921	0.5111	0.5296
102	126.5				0.3387	0.3646	0.3893	0.4132	0.4362	0.4586	0.4803	0.5014	0.5220	0.5421	0.5618
105	130.1				0.3587	0.3860	0.4123	0.4375	0.4619	0.4856	0.5985	0.5309	0.5527	0.5740	0.5949
108	133.7				0.3792	0.4081	0.4358	0.4625	0.4883	0.5133	0.5376	0.5613	0.5843	0.6068	0.6289
111	137.3				0.4003	0.4308	0.4600	0.4882	0.5155	0.5418	0.5675	0.5924	0.6168	0.6406	0.6638
114	140.8				0.4219	0.4541	0.4849	0.5146	0.5433	0.5711	0.5981	0.6245	0.6501	0.6752	0.6997
117	144.4				0.4441	0.4779	0.5104	0.5417	0.5719	0.6012	0.6296	0.6573	0.6843	0.7107	0.7365
120	148.0					0.5024	0.5365	0.5694	0.6012	0.6320	0.6619	0.6910	0.7194	0.7471	0.7742
123	151.6					0.5275	0.5633	0.5979	0.6312	0.6635	0.6949	0.7255	0.7553	0.7844	0.8129
126	155.2					0.5532	0.5908	0.6270	0.6619	0.6958	0.7288	0.7608	0.7921	0.8226	0.8525
129	158.8					0.5795	0.6189	0.6568	0.6934	0.7289	0.7634	0.7970	0.8297	0.8617	0.8930
132	162.4					0.6064	0.6476	0.6873	0.7256	0.7627	0.7988	0.8340	0.8682	0.9017	0.9344

Table 6. Total volume overbark in cubic meters for **MAHOGANY** planted on the roadsides and embankments in the coastal areas of Bangladesh.

GBH (cm)	BG (cm)	Volume in cubic meters for the height in meters									
		5	6	7	8	9	10	11	12	13	14
15	22.6	0.0045	0.0056	0.0068	0.0080	0.0092	0.0105				
18	26.4	0.0063	0.0079	0.0095	0.0112	0.0130	0.0148				
21	30.1	0.0084	0.0105	0.0127	0.0150	0.0173	0.0197	0.0222	0.0247		
24	33.8	0.0108	0.0135	0.0163	0.0192	0.0222	0.0253	0.0284	0.0316		
27	37.6	0.0135	0.0168	0.0203	0.0240	0.0277	0.0315	0.0354	0.0394		
30	41.3	0.0164	0.0205	0.0248	0.0292	0.0337	0.0384	0.0431	0.0480	0.0529	0.0580
33	45.0	0.0196	0.0245	0.0296	0.0348	0.0403	0.0458	0.0515	0.0573	0.0633	0.0693
36	48.7	0.0230	0.0288	0.0348	0.0410	0.0474	0.0539	0.0606	0.0674	0.0744	0.0815
39	52.5	0.0267	0.0334	0.0404	0.0476	0.0550	0.0626	0.0704	0.0783	0.0864	0.0946
42	56.2	0.0307	0.0384	0.0464	0.0546	0.0632	0.0719	0.0808	0.0899	0.0992	0.1087
45	59.9	0.0349	0.0437	0.0528	0.0622	0.0718	0.0818	0.0919	0.1023	0.1128	0.1236
48	63.7	0.0394	0.0492	0.0595	0.0710	0.0810	0.0922	0.1037	0.1154	0.1273	0.1394
51	67.4	0.0441	0.0551	0.0666	0.0785	0.0907	0.1033	0.1161	0.1292	0.1425	0.1561
54	71.1	0.0490	0.0613	0.0741	0.0873	0.1009	0.1149	0.1292	0.1437	0.1586	0.1737
57	74.8	0.0542	0.0679	0.0820	0.0966	0.1117	0.1271	0.1429	0.1590	0.1754	0.1921
60	78.6	0.0697	0.0747	0.0902	0.1063	0.1229	0.1399	0.1572	0.1750	0.1930	0.2114
63	82.3				0.1165	0.1346	0.1532	0.1722	0.1916	0.2114	0.2316
66	86.0				0.1270	0.1468	0.1671	0.1878	0.2090	0.2306	0.2526
69	89.8				0.1380	0.1595	0.1815	0.2041	0.2271	0.2506	0.2744
72	93.5				0.1494	0.1727	0.1965	0.2209	0.2459	0.2713	0.2971
75	97.2				0.1613	0.1864	0.2121	0.2384	0.2653	0.2972	0.3206
78	100.9				0.1735	0.2005	0.2282	0.2565	0.2855	0.3150	0.3450
81	104.7				0.1862	0.2151	0.2449	0.2753	0.3063	0.3380	0.3702
84	108.4				0.1992	0.2302	0.2621	0.2946	0.3278	0.3617	0.3962
87	112.1				0.2127	0.2458	0.2798	0.3145	0.3500	0.3862	0.4230
90	115.9				0.2266	0.2619	0.2981	0.3351	0.3729	0.4114	0.4506
93	119.6				0.2409	0.2784	0.3169	0.3562	0.3964	0.4374	0.4790
96	123.3				0.2556	0.2954	0.3362	0.3780	0.4206	0.4640	0.5083
99	127.0				0.2707	0.3129	0.3561	0.4003	0.4455	0.4915	0.5383
102	130.8				0.2862	0.3308	0.3765	0.4232	0.4710	0.5196	0.5692
105	134.5				0.3021	0.3492	0.3974	0.4468	0.4972	0.5485	0.6008
108	138.2				0.3184	0.3680	0.4189	0.4709	0.5240	0.5781	0.6332
111	122.0				0.3352	0.3873	0.4408	0.4956	0.5515	0.6085	0.6664
114	145.7				0.3523	0.4071	0.4633	0.5209	0.5796	0.6395	0.7004
117	149.4				0.3697	0.4273	0.4863	0.5467	0.6084	0.6713	0.7352
120	153.1				0.3876	0.4480	0.5099	0.5732	0.6378	0.7037	0.7708

Table 6. Continued.

GBH (cm)	BG (cm)	Volume in cubic meters for the height in meters							
		11	12	13	14	15	16	17	18
78	100.9	0.2565	0.2855	0.3150	0.3450	0.3755	0.4065	0.4379	0.4698
81	104.7	0.2753	0.3063	0.3380	0.3702	0.4029	0.4361	0.4699	0.5040
84	108.4	0.2946	0.3278	0.3617	0.3962	0.4312	0.4668	0.5029	0.5394
87	112.1	0.3145	0.3500	0.3862	0.4230	0.4604	0.4984	0.5369	0.5759
90	115.9	0.3351	0.3729	0.4114	0.4506	0.4904	0.5309	0.5719	0.6135
93	119.6	0.3562	0.3964	0.4374	0.4790	0.5214	0.5644	0.6080	0.6523
96	123.3	0.3780	0.4206	0.4640	0.5083	0.5532	0.5989	0.6452	0.6921
99	127.0	0.4003	0.4455	0.4915	0.5383	0.5859	0.6343	0.6833	0.7330
102	130.8	0.4232	0.4710	0.5196	0.5692	0.6195	0.6706	0.7224	0.7750
105	134.5	0.4468	0.4972	0.5485	0.6008	0.6539	0.7079	0.7626	0.8181
108	138.2	0.4709	0.5240	0.5781	0.6332	0.6892	0.7461	0.8038	0.8622
111	142.0	0.4956	0.5515	0.6085	0.6664	0.7254	0.7852	0.8459	0.9074
114	145.7	0.5209	0.5796	0.6395	0.7004	0.7624	0.8253	0.8891	0.9537
117	149.4	0.5467	0.6084	0.6713	0.7352	0.8003	0.8663	0.9332	1.0011
120	153.1	0.5732	0.6378	0.7037	0.7708	0.8390	0.9082	0.9784	1.0496
123	156.9	0.6002	0.6679	0.7369	0.8072	0.8785	0.9510	1.0245	1.0991
126	160.6	0.6278	0.6986	0.7708	0.8443	0.9190	0.9948	1.0717	1.1496
129	164.3	0.6560	0.7300	0.8054	0.8822	0.9602	1.0394	1.1198	1.2012
132	168.1	0.6848	0.7620	0.8407	0.9209	1.0023	1.0850	1.1689	1.2539
135	171.8	0.7141	0.7947	0.8767	0.9603	1.0452	1.1315	1.2189	1.3076
138	175.5	0.7440	0.8279	0.9135	1.0005	1.0890	1.1788	1.2700	1.3623
141	179.3	0.7745	0.8618	0.9509	1.0415	1.1336	1.2271	1.3220	1.4181
144	183.0	0.8055	0.8964	0.9890	1.0832	1.1790	1.2763	1.3749	1.4749
147	186.7	0.8371	0.9315	0.10278	1.1257	1.2253	1.3263	1.4289	1.5328
150	190.4	0.8693	0.9673	1.0672	1.1690	1.2723	1.3773	1.4838	1.5917
153	194.2	0.9020	1.0037	1.1074	1.2130	1.3202	1.4291	1.5396	1.6516
156	197.9	0.9353	1.0408	1.1483	1.2577	1.3690	1.4819	1.5964	1.7126
159	201.6	0.9691	1.0784	1.1898	1.3032	1.4185	1.5355	1.6542	1.7745
162	205.4	1.0035	1.1167	1.2321	1.3495	1.4688	1.5900	1.7129	1.8375
165	209.1	1.0385	1.1556	1.2750	1.3965	1.5200	1.6454	1.7726	1.9015
168	212.8	1.0740	1.1951	1.3186	1.4443	1.5720	1.7017	1.8332	1.9666
171	216.5	1.1101	1.2353	1.3629	1.4928	1.6248	1.7588	1.8948	2.0326
174	220.3	1.1467	1.2760	1.4078	1.5420	1.6784	1.8168	1.9573	2.0997
177	224.0	1.1839	1.3174	1.4535	1.5920	1.7328	1.8757	2.0207	2.1677
180	227.7	1.2216	1.3594	1.4998	1.6427	1.7880	1.9355	2.0851	2.2363

Table 7. Conversion factors to estimate the underbark volumes up to different top end diameters for **MAHOGANY** planted on the roadsides and embankments in the coastal areas of Bangladesh.

GBH (cm)	BG (cm)	Fub	F5	F10	F15	F20
15	22.6	0.6012	0.6180			
18	26.4	0.6535	0.6675			
21	30.1	0.6965	0.7076			
24	33.8	0.7322	0.7405			
27	37.6	0.7623	0.7678			
30	41.3	0.7879	0.7907	0.2285		
33	45.0	0.8098	0.8101	0.2669		
36	48.7	0.8287	0.8266	0.3041		
39	52.5	0.8451	0.8407	0.3401		
42	56.2	0.8594	0.8529	0.3748	0.1066	
45	59.9	0.8719	0.8633	0.4084	0.1414	0.0025
48	63.7	0.8829	0.8724	0.4408	0.1752	0.0318
51	67.4	0.8926	0.8802	0.4719	0.2080	0.0605
54	71.1	0.9011	0.8870	0.5018	0.2399	0.0886
57	74.8	0.9087	0.8929	0.5305	0.2709	0.1162
60	78.6	0.9153	0.8979	0.5580	0.3009	0.1432
63	82.3	0.9212	0.9023	0.5843	0.3299	0.1696
66	86.0	0.9265	0.9061	0.6094	0.3580	0.1955
69	89.8	0.9311	0.9093	0.6333	0.3852	0.2208
72	93.5	0.9352	0.9120	0.6559	0.4114	0.2455
75	97.2	0.9388	0.9143	0.6774	0.4367	0.2696
78	100.9	0.9419	0.9162	0.6976	0.4610	0.2932
81	104.7	0.9447	0.9177	0.7166	0.4844	0.3162
84	108.4	0.9471	0.9190	0.7344	0.5068	0.3387
87	112.1	0.9492	0.9199	0.7510	0.5283	0.3606
90	115.9	0.9510	0.9206	0.7664	0.5488	0.3819
93	119.6	0.9525	0.9211	0.7806	0.5684	0.4026
96	123.3	0.9538	0.9214	0.7936	0.5870	0.4228
99	127.0	0.9548	0.9214	0.8053	0.6047	0.4424
102	130.8	0.9557	0.9214	0.8159	0.6214	0.4614
105	134.5	0.9563	0.9214	0.8252	0.6372	0.4799
108	138.2	0.9568	0.9214	0.8333	0.6520	0.4978
111	142.0	0.9572	0.9214	0.8402	0.6659	0.5151
114	145.7	0.9573	0.9214	0.8459	0.6788	0.5319
117	149.4	0.9574	0.9214	0.8504	0.6908	0.5481
120	153.1	0.9574	0.9214	0.8537	0.7018	0.5637
123	156.9	0.9574	0.9214	0.8558	0.7119	0.5787
126	160.6	0.9574	0.9214	0.8566	0.7211	0.5932

Table 8. Total volumes overbark in cubic meters for **KOROI** planted on the roadsides and embankments in the coastal areas of Bangladesh.

GBH (cm)	BG (cm)	Volume in cubic meters for the height in meters										
		5	6	7	8	9	10	11	12	13	14	15
15	19.9	0.0054	0.0073	0.0093	0.0114	0.0138	0.0163	0.0189				
18	23.7	0.0074	0.0099	0.0127	0.0156	0.0188	0.0223	0.0259				
21	27.5	0.0097	0.0129	0.0165	0.0204	0.0245	0.0290	0.0337				
24	31.2	0.0122	0.0162	0.0207	0.0256	0.0308	0.0364	0.0424				
27	35.0	0.0149	0.0199	0.0254	0.0313	0.0377	0.0446	0.0519				
30	38.8	0.0178	0.0238	0.0304	0.0375	0.0452	0.0534	0.0621				
33	42.6	0.0210	0.0280	0.0358	0.0442	0.0532	0.0629	0.0731	0.0839	0.0953		
36	46.4	0.0244	0.0325	0.0415	0.0513	0.0618	0.0730	0.0849	0.0974	0.1106		
39	50.1	0.0280	0.0373	0.0476	0.0588	0.0709	0.0837	0.0974	0.1117	0.1268		
42	53.9	0.0317	0.0424	0.0541	0.0668	0.0805	0.0951	0.1105	0.1268	0.1440		
45	57.7	0.0357	0.0477	0.0608	0.0752	0.0906	0.1070	0.1244	0.1428	0.1620		
48	61.5	0.0399	0.0532	0.0680	0.0839	0.1011	0.1195	0.1389	0.1595	0.1810		
51	65.2	0.0443	0.0591	0.0754	0.0931	0.1122	0.1326	0.1541	0.1769	0.2008		
54	69.0	0.0488	0.0651	0.0831	0.1027	0.1288	0.1462	0.1700	0.1951	0.2214		
57	72.8	0.0536	0.0715	0.0912	0.1127	0.1358	0.1604	0.1865	0.2140	0.2429	0.2732	0.3047
60	76.6	0.0585	0.0780	0.0996	0.1230	0.1482	0.1751	0.2036	0.2337	0.2653	0.2983	0.3327
63	80.4	0.0636	0.0848	0.1083	0.1337	0.1612	0.1904	0.2214	0.2541	0.2884	0.3243	0.3617
66	84.1	0.0688	0.0919	0.1173	0.1448	0.1745	0.2062	0.2398	0.2751	0.3123	0.3512	0.3917
69	87.9	0.0743	0.0991	0.1265	0.1563	0.1883	0.2225	0.2587	0.2969	0.3370	0.3789	0.4227
72	91.7	0.0799	0.1066	0.1361	0.1681	0.2026	0.2393	0.2783	0.3194	0.3625	0.4076	0.4546
75	95.5	0.0857	0.1144	0.1460	0.1803	0.2172	0.2567	0.2984	0.3425	0.3888	0.4371	0.4876
78	99.3	0.0917	0.1223	0.1561	0.1928	0.2323	0.2745	0.3192	0.3663	0.4158	0.4675	0.5214
81	103.0	0.0978	0.1305	0.1665	0.2057	0.2479	0.2928	0.3405	0.3908	0.4435	0.4987	0.5563
84	106.8	0.1041	0.1389	0.1772	0.2189	0.2638	0.3117	0.3624	0.4159	0.4721	0.5308	0.5920
87	110.6	0.1105	0.1475	0.1882	0.2325	0.2801	0.3310	0.3848	0.4417	0.5013	0.5637	0.6287
90	114.4	0.1171	0.1563	0.1995	0.2464	0.2969	0.3508	0.4079	0.4681	0.5313	0.5974	0.6663
93	118.1	0.1239	0.1653	0.2110	0.2606	0.3140	0.3710	0.4314	0.4951	0.5620	0.6319	0.7048
96	121.9	0.1308	0.1746	0.2228	0.2752	0.3316	0.3918	0.4555	0.5228	0.5934	0.6672	0.7442
99	125.7	0.1379	0.1840	0.2349	0.2901	0.3496	0.4130	0.4802	0.5511	0.6255	0.7033	0.7845
102	129.5				0.3053	0.3679	0.4346	0.5054	0.5800	0.6583	0.7402	0.8256
105	133.3				0.3209	0.3866	0.4568	0.5311	0.6095	0.6918	0.7779	0.8677
108	137.0				0.3367	0.4057	0.4794	0.5574	0.6397	0.7260	0.8164	0.9106
111	140.8				0.3529	0.4252	0.5024	0.5842	0.6704	0.7609	0.8556	0.9543
114	144.6				0.3694	0.4451	0.5259	0.6115	0.7018	0.7965	0.8956	0.9989
117	148.4				0.3862	0.4654	0.5498	0.6393	0.7337	0.8328	0.9364	1.0444
120	152.2				0.4034	0.4860	0.5742	0.6676	0.7662	0.8697	0.9779	1.0907

Table 8. Continued.

GBH (cm)	BG (cm)	Volume in cubic meters for the height in meters											
		11	12	13	14	15	16	17	18	19	20	21	22
78	99.0	0.3192	0.3663	0.4158	0.4675	0.5214	0.5775	0.6357	0.6958	0.7580	0.8221	0.8881	0.9559
81	103.0	0.3405	0.3908	0.4435	0.4987	0.5563	0.6161	0.6781	0.7423	0.8086	0.8770	0.9474	1.0197
84	106.8	0.3624	0.4159	0.4721	0.5308	0.5920	0.6557	0.7217	0.7900	0.8606	0.9334	1.0083	1.0853
87	110.6	0.3848	0.4417	0.5013	0.5637	0.6287	0.6963	0.7664	0.8390	0.9139	0.9912	1.0707	1.1525
90	114.4	0.4079	0.4681	0.5313	0.5974	0.6663	0.7379	0.8122	0.8891	0.9686	1.0505	1.1348	1.2215
93	118.1	0.4314	0.4951	0.5620	0.6319	0.7048	0.7806	0.8592	0.9405	1.0245	1.1111	1.2003	1.2920
96	121.9	0.4555	0.5228	0.5934	0.6672	0.7442	0.8242	0.9072	0.9931	1.0818	1.1733	1.2674	1.3643
99	125.7	0.4802	0.5511	0.6255	0.7033	0.7845	0.8688	0.9563	1.0468	1.1403	1.2368	1.3360	1.4381
102	129.5	0.5054	0.5800	0.6583	0.7402	0.8256	0.9144	1.0065	1.1018	1.2002	1.3017	1.4061	1.5136
105	133.3	0.5311	0.6095	0.6918	0.7779	0.8677	0.9610	1.0577	1.1579	1.2613	1.3679	1.4777	1.5906
108	137.0	0.5574	0.6397	0.7260	0.8164	0.9106	1.0085	1.1100	1.2151	1.3236	1.4356	1.5508	1.6693
111	140.8	0.5842	0.6704	0.7609	0.8556	0.9543	1.0569	1.1634	1.2735	1.3873	1.5045	1.6253	1.7495
114	144.6	0.6115	0.7018	0.7965	0.8956	0.9989	1.1063	1.2177	1.3330	1.4521	1.5749	1.7013	1.8313
117	148.4	0.6393	0.7337	0.8328	0.9364	1.0444	1,1567	1.2732	1.3937	1.5182	1.6465	1.7787	1.9146
120	152.2	0.6676	0.7662	0.8697	0.9779	1.0907	1.2080	1.3296	1.4555	1.5855	1.7195	1.8575	1.9995
123	155.9	0.6965	0.7993	0.9072	1.0201	1.1378	1.2602	1.3870	1.5183	1.6540	1.7938	1.9378	2.0858
126	159.7	0.7258	0.8330	0.9455	1.0631	1.1858	1.3133	1.4455	1.5823	1.7237	1.8694	2.0195	2.1738
129	163.5	0.7557	0.8673	0.9844	1.1069	1.2345	1.3673	1.5050	1.6474	1.7946	1.9463	2.1025	2.2632
132	167.3	0.7861	0.9021	1.0239	1.1513	1.2841	1.4222	1.5654	1.7136	1.8667	2.0245	2.1870	2.3541
135	171.0	0.8169	0.9375	1.0641	1.1965	1.3345	1.4780	1.6268	1.7809	1.9399	2.1040	2.2728	2.4465
138	174.8	0.8483	0.9735	1.1049	1.2424	1.3857	1.5347	1.6893	1.8492	2.0144	2.1847	2.3601	2.5403
141	178.6	0.8801	1.0100	1.1464	1.2890	1.4377	1.5923	1.7527	1.9186	2.0900	2.2667	2.4486	2.6357
144	182.4	0.9124	1.0471	1.1885	1.3364	1.4905	1.6508	1.8170	1.9890	2.1667	2.3499	2.5385	2.7325
147	186.2	0.9452	1.0848	1.2312	1.3844	1.5441	1.7102	1.8824	2.0606	2.2446	2.4344	2.6298	2.8307
150	189.9	0.9785	1.1230	1.2746	1.4332	1.5985	1.7704	1.9487	2.1331	2.3237	2.5201	2.7224	2.9304
153	193.7	1.0123	1.1617	1.3186	1.4826	1.6537	1.8315	2.0159	2.2067	2.4038	2.6071	2.8164	3.0315
156	197.5	1.0465	1.2010	1.3632	1.5328	1.7096	1.8934	2.0841	2.2814	2.4852	2.6953	2.9116	3.1341
159	201.3	1.0812	1.2408	1.4084	1.5836	1.7663	1.9562	2.1532	2.3570	2.5676	2.7847	3.0082	3.2380
162	205.1	1.1164	1.2812	1.4542	1.6352	1.8238	2.0199	2.2233	2.4337	2.6511	2.8753	3.1061	3.3434
165	208.8	1.1521	1.3221	1.5007	1.6874	1.8820	2.0844	2.2943	2.5115	2.7358	2.9671	3.2053	3.4501
168	212.6	1.1882	1.3636	1.5477	1.7403	1.9410	2.1497	2.3662	2.5902	2.8216	3.0601	3.3058	3.5583
171	216.4	1.2247	1.4055	1.5953	1.7938	2.0008	2.2159	2.4390	2.6699	2.9084	3.1543	3.4075	3.6678
174	220.2	1.2618	1.4481	1.6436	1.8481	2.0613	2.2829	2.5128	2.7507	2.9964	3.2497	3.5106	3.7788
177	223.9	1.2993	1.4911	1.6924	1.9030	2.1225	2.3508	2.5875	2.8324	3.0854	3.3463	3.6149	3.8911
180	227.7	1.3372	1.5346	1.7419	1.9586	2.1845	2.4194	2.6631	2.9152	3.1756	3.4441	3.7205	4.0047

Table 9. Conversion factors to estimate the underbark volumes up to different top end diameters for **KOROI** planted on the roadsides and embankments in the coastal areas of Bangladesh.

DBH	BG(cm)	Fub	F5	F10	F15	F20
15	19.9	0.6702	0.5136			
18	23.7	0.7133	0.5604			
21	27.5	0.7474	0.5991			
24	31.2	0.7752	0.6318			
27	35.0	0.7980	0.6596	0.0306		
30	38.8	0.8172	0.6835	0.1362		
33	42.6	0.8335	0.7043	0.2226		
36	46.4	0.8474	0.7224	0.2946		
39	50.1	0.8594	0.7384	0.3555		
42	53.9	0.8699	0.7525	0.4078		
45	57.7	0.8791	0.7651	0.4530		
48	61.5	0.8873	0.7763	0.4926	0.1129	
51	65.2	0.8945	0.7864	0.5276	0.1740	
54	69.0	0.9009	0.7955	0.5586	0.2282	
57	72.8	0.9066	0.8036	0.5864	0.2768	
60	76.6	0.9117	0.8110	0.6114	0.3205	0.0335
63	80.4	0.9163	0.8178	0.6340	0.3601	0.0721
66	84.1	0.9205	0.8239	0.6546	0.3960	0.1095
69	87.9	0.9243	0.8294	0.6734	0.4289	0.1460
72	91.7	0.9277	0.8345	0.6906	0.4590	0.1814
75	95.5	0.9307	0.8391	0.7064	0.4866	0.2158
78	99.3	0.9335	0.8433	0.7211	0.5122	0.2492
81	103.0	0.9361	0.8472	0.7346	0.5359	0.2815
84	106.8	0.9384	0.8508	0.7472	0.5578	0.3128
87	110.6	0.9405	0.8540	0.7589	0.5783	0.3431
90	114.4	0.9424	0.8570	0.7698	0.5974	0.3723
93	118.1	0.9442	0.8597	0.7800	0.6152	0.4005
96	121.9	0.9458	0.8622	0.7896	0.6320	0.4277
99	125.7	0.9472	0.8645	0.7986	0.6477	0.4538
102	129.5	0.9485	0.8666	0.8071	0.6625	0.4789
105	133.3	0.9497	0.8685	0.8150	0.6765	0.5030
108	137.0	0.9508	0.8703	0.8226	0.6897	0.5261
111	140.8	0.9517	0.8719	0.8297	0.7021	0.5481
114	144.6	0.9526	0.8733	0.8365	0.7140	0.5691
117	148.4	0.9534	0.8747	0.8429	0.7252	0.5890
120	152.2	0.9541	0.8759	0.8490	0.7358	0.6080
123	155.9	0.9547	0.8769	0.8548	0.7459	0.6258
126	159.7	0.9553	0.8779	0.8603	0.7556	0.6427
129	163.5	0.9557	0.8788	0.8656	0.7648	0.6585
132	167.3	0.9562	0.8796	0.8706	0.7736	0.6733
135	171.0	0.9565	0.8803	0.8754	0.7820	0.6871
138	174.8	0.9568	0.8809	0.8800	0.7900	0.6998
141	178.6	0.9571	0.8814	0.8844	0.7977	0.7115
144	182.4	0.9573	0.8819	0.8886	0.8050	0.7222
147	186.2	0.9575	0.8823	0.8926	0.8121	0.7318
150	189.9	0.9576	0.8826	0.8965	0.8189	0.7405

Table 10. Total volumes overbark in cubic meters table for **SISSOO** planted on the roadsides and embankments in the coastal areas of Bangladesh.

GBH (cm)	BG (cm)	Volume in cubic meters for the height in meters										
		5	6	7	8	9	10	11	12	13	14	15
15	20.1	0.0044	0.0054	0.0063	0.0073	0.0083	0.0093	0.0103	0.0113			
18	23.9	0.0063	0.0077	0.0091	0.0105	0.0119	0.0134	0.0148	0.0163			
21	27.8	0.0086	0.0105	0.0124	0.0143	0.0162	0.0181	0.0201	0.0221			
24	31.6	0.0112	0.0136	0.0161	0.0186	0.0211	0.0236	0.0262	0.0288			
27	35.4	0.0141	0.0172	0.0203	0.0235	0.0266	0.0298	0.0331	0.0363			
30	39.3	0.0174	0.0212	0.0250	0.0289	0.0328	0.0368	0.0407	0.0447			
33	43.1	0.0210	0.0256	0.0302	0.0349	0.0396	0.0444	0.0492	0.0540			
36	47.0	0.0250	0.0304	0.0359	0.0415	0.0471	0.0527	0.0584	0.0642	0.0700	0.0758	0.0816
39	50.8	0.0293	0.0356	0.0421	0.0486	0.0552	0.0618	0.0685	0.0752	0.0820	0.0888	0.0957
42	54.6	0.0339	0.0413	0.0487	0.0563	0.0639	0.0716	0.0793	0.0871	0.0949	0.1028	0.1108
45	58.5	0.0389	0.0473	0.0559	0.0645	0.0732	0.0820	0.0909	0.0998	0.1088	0.1179	0.1270
48	62.3	0.0442	0.0538	0.0635	0.0733	0.0832	0.0932	0.1033	0.1135	0.1237	0.1340	0.1443
51	66.2	0.0498	0.0606	0.0716	0.0826	0.0938	0.1051	0.1165	0.1279	0.1395	0.1510	0.1627
54	70.0	0.0558	0.0679	0.0801	0.0926	0.1051	0.1177	0.1304	0.1433	0.1562	0.1691	0.1822
57	73.8	0.0621	0.0756	0.0892	0.1030	0.1169	0.1310	0.1452	0.1594	0.1738	0.1883	0.2028
60	77.7	0.0687	0.0836	0.0987	0.1140	0.1294	0.1450	0.1607	0.1765	0.1924	0.2084	0.2245
63	81.5	0.0757	0.0921	0.1088	0.1256	0.1426	0.1597	0.1770	0.1944	0.2119	0.2295	0.2472
66	85.4	0.0830	0.1010	0.1192	0.1377	0.1563	0.1751	0.1941	0.2131	0.2323	0.2517	0.2711
69	89.2	0.0906	0.1103	0.1302	0.1504	0.1707	0.1912	0.2119	0.2328	0.2537	0.2748	0.2960
72	93.0	0.0986	0.1200	0.1417	0.1636	0.1857	0.2081	0.2306	0.2532	0.2760	0.2990	0.3220
75	96.9	0.1069	0.1301	0.1536	0.1774	0.2014	0.2256	0.2500	0.2745	0.2993	0.3241	0.3492
78	100.7	0.1155	0.1406	0.1660	0.1917	0.2176	0.2438	0.2702	0.2967	0.3234	0.3503	0.3774
81	104.6	0.1245	0.1515	0.1789	0.2066	0.2345	0.2627	0.2911	0.3197	0.3485	0.3775	0.4066
84	108.4	0.1338	0.1628	0.1922	0.2220	0.2520	0.2823	0.3129	0.3436	0.3746	0.4057	0.4370
87	112.2	0.1434	0.1745	0.2061	0.2380	0.2702	0.3026	0.3354	0.3683	0.4015	0.4349	0.4684
90	116.1	0.1534	0.1866	0.2204	0.2545	0.2889	0.3236	0.3586	0.3939	0.4294	0.4651	0.5010
93	119.9	0.1636	0.1992	0.2352	0.2715	0.3083	0.3454	0.3827	0.4203	0.4582	0.4963	0.5346
96	123.8	0.1743	0.2121	0.2504	0.2892	0.3283	0.3678	0.4075	0.4476	0.4879	0.5285	0.6593
99	127.6	0.1852	0.2254	0.2661	0.3073	0.3489	0.3909	0.4331	0.4757	0.5186	0.5617	0.6050
102	131.4	0.1965	0.2391	0.2824	0.3260	0.3702	0.4147	0.4595	0.5047	0.5501	0.5959	0.6419
105	135.3	0.2081	0.2533	0.2990	0.3453	0.3920	0.4392	0.4867	0.5345	0.5826	0.6311	0.6798
108	139.1	0.2200	0.2678	0.3162	0.3651	0.4145	0.4644	0.5146	0.5652	0.6161	0.6673	0.7188
111	142.9	0.2323	0.2827	0.3338	0.3855	0.4376	0.4902	0.5433	0.5967	0.6504	0.7045	0.7588
114	146.8	0.2449	0.2981	0.3519	0.4064	0.4614	0.5168	0.5727	0.6290	0.6857	0.7427	0.8000
117	150.6	0.2578	0.3138	0.3705	0.4278	0.4857	0.5441	0.6030	0.6622	0.7219	0.7819	0.8422
120	154.5	0.2711	0.3299	0.3895	0.4498	0.5107	0.5721	0.6340	0.6963	0.7590	0.8221	0.8855

Table 10. Continued.

GBH (cm)	BG (cm)	Volume in cubic meters for the height in meters											
		11	12	13	14	15	16	17	18	19	20	21	22
75	96.9	0.250	0.2745	0.2993	0.3241	0.3492	0.3743	0.3996	0.4250	0.4504	0.4760	0.5017	0.5275
78	100.7	0.270	0.2967	0.3234	0.3503	0.3774	0.4045	0.4318	0.4593	0.4868	0.5145	0.5423	0.5701
81	104.6	0.291	0.3197	0.3485	0.3775	0.4066	0.4359	0.4653	0.4949	0.5246	0.5544	0.5843	0.6144
84	108.4	0.312	0.3436	0.3746	0.4057	0.4370	0.4685	0.5001	0.5319	0.5638	0.5958	0.6280	0.6602
87	112.2	0.335	0.3683	0.4015	0.4349	0.4684	0.5022	0.5361	0.5701	0.6043	0.6387	0.6731	0.7077
90	116.1	0.358	0.3939	0.4294	0.4651	0.5010	0.5370	0.5733	0.6097	0.6463	0.6830	0.7199	0.7569
93	119.9	0.382	0.4203	0.4582	0.4963	0.5346	0.5731	0.6118	0.6506	0.6896	0.7288	0.7682	0.8077
96	123.8	0.407	0.4476	0.4879	0.5285	0.5693	0.6102	0.6514	0.6928	0.7344	0.7761	0.8180	0.8601
99	127.6	0.433	0.4757	0.5186	0.5617	0.6050	0.6486	0.6924	0.7364	0.7805	0.8249	0.8694	0.9141
102	131.4	0.459	0.5047	0.5501	0.5959	0.6419	0.6881	0.7345	0.7812	0.8281	0.8751	0.9223	0.9698
105	135.3	0.486	0.5345	0.5826	0.6311	0.6798	0.7287	0.7779	0.8273	0.8770	0.9268	0.9768	1.0270
108	139.1	0.514	0.5652	0.6161	0.6673	0.7188	0.7705	0.8225	0.8748	0.9273	0.9800	1.0329	1.0860
111	142.9	0.543	0.5967	0.6504	0.7045	0.7588	0.8135	0.8684	0.9236	0.9790	1.0346	1.0904	1.1465
114	146.8	0.572	0.6290	0.6857	0.7427	0.8000	0.8576	0.9155	0.9736	1.0321	1.0907	1.1496	1.2087
117	150.6	0.603	0.6622	0.7219	0.7819	0.8422	0.9029	0.9638	1.0250	1.0865	1.1483	1.2102	1.2725
120	154.5	0.634	0.6963	0.7590	0.8221	0.8855	0.9493	1.0134	1.0777	1.1424	1.2073	1.2725	1.3379
123	158.3	0.665	0.7311	0.7970	0.8633	0.9299	0.9968	1.0641	1.1317	1.1996	1.2678	1.3362	1.4049
126	162.1	0.698	0.7669	0.8360	0.9054	0.9753	1.0456	1.1161	1.1870	1.2583	1.3298	1.4015	1.4736
129	166.0	0.731	0.8035	0.8758	0.9486	1.0218	1.0954	1.1694	1.2437	1.3183	1.3932	1.4684	1.5439
132	169.8	0.765	0.8409	0.9166	0.9928	1.0694	1.1464	1.2238	1.3016	1.3797	1.4581	1.5368	1.6158
135	173.7	0.800	0.8791	0.9583	1.0380	1.1181	1.1986	1.2795	1.3608	1.4424	1.5244	1.6067	1.6893
138	177.5	0.836	0.9182	1.0010	1.0842	1.1678	1.2519	1.3364	1.4213	1.5066	1.5922	1.6781	1.7644
141	181.3	0.872	0.9582	1.0445	1.1313	1.2186	1.3064	1.3946	1.4832	1.5721	1.6615	1.7512	1.8412
144	185.2	0.909	0.9990	1.0890	1.1795	1.2705	1.3620	1.4539	1.5463	1.6391	1.7322	1.8257	1.9195
147	189.0	0.947	1.0406	1.1343	1.2286	1.3234	1.4188	1.5145	1.6107	1.7074	1.8044	1.9018	1.9995
150	192.9	0.986	1.0831	1.1806	1.2788	1.3775	1.4767	1.5763	1.6765	1.7770	1.8780	1.9794	2.0811

Table 11. Conversion factors to estimate the underbark volumes up to different top end diameters for **SISSOO** planted on the roadsides and embankments in the coastal areas of Bangladesh.

GBH	BG (cm)	Fub	F5	F10	F15	F20
15	20.1	0.6636	0.5430			
18	23.9	0.7063	0.5800			
21	27.8	0.7403	0.6099			
24	31.6	0.7678	0.6346			
27	35.4	0.7906	0.6556			
30	39.3	0.8097	0.6735			
33	43.1	0.8260	0.6892	0.3343		
36	47.0	0.8400	0.7030	0.3859		
39	50.8	0.8521	0.7153	0.4347		
42	54.6	0.8627	0.7264	0.4806		
45	58.5	0.8720	0.7365	0.5238	0.1572	
48	62.3	0.8802	0.7457	0.5641	0.2208	
51	66.2	0.8876	0.7542	0.6015	0.2808	
54	70.0	0.8941	0.7620	0.6362	0.3374	
57	73.8	0.9000	0.7693	0.6680	0.3905	
60	77.7	0.9053	0.7762	0.6970	0.4400	0.1404
63	81.5	0.9101	0.7826	0.7232	0.4860	0.1962
66	85.4	0.9145	0.7887	0.7465	0.5286	0.2491
69	89.2	0.9184	0.7944	0.7670	0.5676	0.2991
72	93.0	0.9220	0.7999	0.7847	0.6031	0.3460
75	96.9	0.9253	0.8052	0.7847	0.6351	0.3901
78	100.7	0.9283	0.8102	0.7847	0.6636	0.4311
81	104.6	0.9311	0.8150	0.7847	0.6885	0.4692
84	108.4	0.9336	0.8196	0.7847	0.7100	0.5044
87	112.2	0.9359	0.8241	0.7847	0.7280	0.5365
90	116.1	0.9381	0.8285	0.7847	0.7424	0.5658
93	119.9	0.9400	0.8327	0.7847	0.7533	0.5920
96	123.8	0.9418	0.8367	0.7847	0.7608	0.6153
99	127.6	0.9435	0.8407	0.7847	0.7647	0.6357
102	131.4	0.9450	0.8446	0.7847	0.7651	0.6531
105	135.3	0.9465	0.8484	0.7847	0.7651	0.6675
108	139.1	0.9478	0.8521	0.7847	0.7651	0.6790
111	142.9	0.9490	0.8557	0.7847	0.7651	0.6875
114	146.8	0.9501	0.8592	0.7847	0.7651	0.6930
117	150.6	0.9511	0.8627	0.7847	0.7651	0.6956
120	154.5	0.9520	0.8662	0.7847	0.7651	0.6956
123	158.3	0.9529	0.8695	0.7847	0.7651	0.6956
126	162.1	0.9536	0.8729	0.7847	0.7651	0.6956
129	166.0	0.9544	0.8762	0.7847	0.7651	0.6956
132	169.8	0.9550	0.8794	0.7847	0.7651	0.6956
135	173.7	0.9556	0.8826	0.7847	0.7651	0.6956
138	177.5	0.9562	0.8858	0.7847	0.7651	0.6956
141	185.2	0.9567	0.8889	0.7847	0.7651	0.6956
144	185.2	0.9571	0.8920	0.7847	0.7651	0.6956
147	189.0	0.9575	0.8951	0.7847	0.7651	0.6956
150	192.9	0.9579	0.8981	0.7847	0.7651	0.6956

Table 12. Total volume in cubicmeters for **BABLA** planted on the roadsides and embankments in the coastal areas of Bangladesh.

GBH (cm)	BG (cm)	Volume in cubic meters for the height in meters												
		5	6	7	8	9	10	11	12	13	14	15	16	17
15	19.3	0.0065	0.0079	0.0093	0.0108	0.0123	0.0137	0.0152	0.0167	0.0183	0.0198	0.0213	0.0229	0.0244
18	22.7	0.0092	0.0111	0.0132	0.0152	0.0173	0.0194	0.0215	0.0236	0.0257	0.0279	0.0301	0.0322	0.0344
21	26.1	0.0122	0.0149	0.0176	0.0203	0.0231	0.0259	0.0287	0.0316	0.0344	0.0373	0.0402	0.0431	0.0460
24	29.5	0.0157	0.0192	0.0226	0.0262	0.0297	0.0333	0.0369	0.0406	0.0442	0.0479	0.0516	0.0554	0.0591
27	32.9	0.0196	0.0239	0.0283	0.0327	0.0371	0.0416	0.0461	0.0506	0.0552	0.0598	0.0645	0.0691	0.0738
30	36.3	0.0239	0.0292	0.0345	0.0398	0.0452	0.0507	0.0562	0.0617	0.0673	0.0730	0.0786	0.0843	0.0900
33	39.7	0.0287	0.0349	0.0412	0.0476	0.0541	0.0607	0.0672	0.0739	0.0806	0.0873	0.0941	0.1009	0.1077
36	43.1	0.0337	0.0411	0.0486	0.0561	0.0637	0.0714	0.0792	0.0870	0.0949	0.1028	0.1108	0.1188	0.1269
39	46.5	0.0392	0.0478	0.0565	0.0652	0.0741	0.0831	0.0921	0.1012	0.1103	0.1195	0.1288	0.1318	0.1475
42	49.9	0.0451	0.0549	0.0649	0.0750	0.0852	0.0955	0.1059	0.1163	0.1268	0.1374	0.1481	0.1588	0.1696
45	53.3	0.0514	0.0626	0.0739	0.0854	0.0970	0.1087	0.1206	0.1325	0.1444	0.1565	0.1686	0.1808	0.1931
48	56.7	0.0580	0.0707	0.0835	0.0964	0.01096	0.1228	0.1361	0.1496	0.1631	0.1767	0.1904	0.2042	0.2180
51	60.1	0.0650	0.0792	0.0936	0.1081	0.1228	0.1376	0.1526	0.1676	0.1828	0.1981	0.2134	0.2289	0.2444
54	63.5	0.0724	0.0882	0.1042	0.1204	0.1368	0.1533	0.1699	0.1867	0.2036	0.2206	0.2377	0.2549	0.2721
57	66.9	0.0802	0.0976	0.1154	0.1333	0.1514	0.1697	0.1881	0.2067	0.2254	0.2442	0.2631	0.2822	0.3013
60	70.3	0.0883	0.1075	0.1271	0.1468	0.1668	0.1869	0.2072	0.2276	0.2482	0.2690	0.2898	0.3108	0.3318
63	73.7	0.0968	0.1179	0.1393	0.1609	0.1828	0.2049	0.2271	0.2495	0.2721	0.2948	0.3177	0.3407	0.3638
66	77.1	0.1056	0.1287	0.1520	0.1756	0.1995	0.2236	0.2479	0.2724	0.2970	0.3218	0.3468	0.3718	0.3970
69	80.5	0.1148	0.1399	0.1653	0.1910	0.2169	0.2431	0.2695	0.2962	0.3229	0.3499	0.3770	0.4043	0.4317
72	83.9	0.1244	0.1516	0.1791	0.2069	0.2350	0.2634	0.2920	0.3209	0.3499	0.3791	0.4085	0.4380	0.4677
75	87.3	0.1344	0.1637	0.1934	0.2234	0.2538	0.2844	0.3153	0.3465	0.3778	0.4094	0.4411	0.4730	0.5051
78	90.7	0.1447	0.1762	0.2082	0.2406	0.2732	0.3026	0.3395	0.3730	0.4068	0.4407	0.4749	0.5092	0.5438
81	94.1	0.1553	0.1892	0.2235	0.2583	0.2934	0.3288	0.3645	0.4005	0.4367	0.4732	0.5099	0.5467	0.5838
84	97.5	0.1663	0.2026	0.2394	0.2766	0.3142	0.3521	0.3903	0.4289	0.4677	0.5067	0.5460	0.5855	0.6252
87	100.9	0.1777	0.2164	0.2557	0.2954	0.3356	0.3761	0.4170	0.4582	0.4996	0.5413	0.5833	0.6255	0.6676
90	104.3	0.1894	0.2307	0.2726	0.3149	0.3577	0.4009	0.4445	0.4883	0.5325	0.5770	0.6217	0.6667	0.7119
93	107.7	0.2014	0.2454	0.2899	0.3350	0.3805	0.4264	0.4728	0.5194	0.5664	0.6137	0.6613	0.7091	0.7572
96	111.1	0.2138	0.2605	0.3078	0.3556	0.4039	0.4527	0.5019	0.5514	0.6013	0.6515	0.7020	0.7528	0.8038
99	114.5	0.2266	0.2760	0.3261	0.3768	0.4280	0.4797	0.5318	0.5843	0.6372	0.6904	0.7439	0.7977	0.8518
102	117.9	0.2397	0.2920	0.3450	0.3986	0.4528	0.5074	0.5626	0.6181	0.6740	0.7303	0.7869	0.8438	0.9010
105	121.3	0.2531	0.3083	0.3643	0.4209	0.4782	0.5359	0.5941	0.6528	0.7118	0.7712	0.8310	0.8911	0.9515
108	124.7	0.2669	0.3251	0.3842	0.4439	0.5042	0.5651	0.6265	0.6883	0.7506	0.8132	0.8763	0.9396	1.0033
111	128.1	0.2811	0.3423	0.4045	0.4674	0.5309	0.5950	0.6596	0.7247	0.7903	0.8563	0.9226	0.9894	1.0565
114	131.5	0.2955	0.3600	0.4253	0.4914	0.5582	0.6256	0.6936	0.7620	0.8310	0.9004	0.9701	1.0403	1.1108
117	134.9	0.3103	0.3780	0.4466	0.5160	0.5862	0.6570	0.7283	0.8002	0.8726	0.9455	1.0188	1.0924	1.1665
120	138.3	0.3255	0.3965	0.4684	0.5412	0.6148	0.6890	0.7639	0.8393	0.9152	0.9916	1.0685	1.1458	1.2234
123	141.7	0.3410	0.4153	0.4907	0.5670	0.6440	0.7218	0.8002	0.8792	0.9588	1.0388	1.1139	1.2003	1.2817
126	145.1	0.3568	0.4346	0.5135	0.5933	0.6739	0.7553	0.8374	0.9200	1.0033	1.0870	1.1713	1.2560	1.3411

Table 13. Conversion factors to estimate the underbark volumes up to different top end diameters for **BABLA** planted on the roadsides and embankments in the coastal areas of Bangladesh.

GBH (cm)	BG (cm)	Fub	F5	F10	F15	F20
15	19.3	0.7235	0.6209			
18	22.7	0.7639	0.6605			
21	26.1	0.7953	0.6918	0.0016		
24	29.5	0.8203	0.7172	0.0631		
27	32.9	0.8406	0.7382	0.1223		
30	36.3	0.8573	0.7557	0.1793		
33	39.7	0.8712	0.7706	0.2339		
36	43.1	0.8830	0.7833	0.2862		
39	46.5	0.8930	0.7943	0.3363		
42	49.9	0.9015	0.8039	0.3840		
45	53.3	0.9089	0.8123	0.4294	0.0510	
48	56.7	0.9152	0.8197	0.4726	0.1067	
51	60.1	0.9207	0.8263	0.5135	0.1600	
54	63.5	0.9255	0.8321	0.5520	0.2109	
57	66.9	0.9296	0.8374	0.5883	0.2594	
60	70.3	0.9333	0.8420	0.6223	0.3055	
63	73.7	0.9364	0.8463	0.6539	0.3491	0.0326
66	77.1	0.9392	0.8500	0.6833	0.3903	0.0790
69	80.5	0.9416	0.8535	0.7104	0.4291	0.1238
72	83.9	0.9437	0.8566	0.7352	0.4655	0.1670
75	87.3	0.9455	0.8594	0.7577	0.4994	0.2085
78	90.7	0.9470	0.8619	0.7779	0.5309	0.2484
81	94.1	0.9483	0.8642	0.7958	0.5600	0.2867
84	97.5	0.9495	0.8663	0.8114	0.5867	0.3234
87	100.9	0.9504	0.8683	0.8247	0.6110	0.3584
90	104.3	0.9512	0.8700	0.8357	0.6328	0.3918
93	107.7	0.9518	0.8716	0.8445	0.6522	0.4236
96	111.1	0.9523	0.8730	0.8445	0.6692	0.4538
99	114.5	0.9526	0.8743	0.8445	0.6838	0.4824
102	117.9	0.9529	0.8755	0.8445	0.6959	0.5093
105	121.3	0.9530	0.8766	0.8445	0.7056	0.5346
108	123.7	0.9531	0.8775	0.8445	0.7129	0.5583
111	128.1	0.9531	0.8784	0.8445	0.7178	0.5803
114	131.5	0.9530	0.8792	0.8445	0.7202	0.6008
117	134.9	0.9528	0.8799	0.8445	0.7202	0.61 96
120	138.3	0.9525	0.8805	0.8445	0.7202	0.6368

Table 14. Total volume overbark in cubic meters for **RAIN TREE** planted on the roadsides and embankments in the coastal areas of Bangladesh.

GBH (cm)	BG (cm)	Volume in cubic meters for the height in meters										
		5	6	7	8	9	10	11	12	13	14	15
15	20.2	0.0050	0.0062	0.0075	0.0087	0.0101	0.0114	0.0128	0.0141	0.0155	0.0170	0.0184
18	23.9	0.0071	0.0088	0.0105	0.0124	0.0142	0.0161	0.0180	0.0200	0.0219	0.0240	0.0260
21	27.6	0.0095	0.0118	0.0141	0.0165	0.0190	0.0215	0.0241	0.0267	0.0294	0.0321	0.0348
24	31.3	0.0122	0.0151	0.0182	0.0213	0.0245	0.0277	0.0310	0.0344	0.0378	0.0413	0.0448
27	35.0	0.0152	0.0189	0.0227	0.0266	0.0306	0.0346	0.0388	0.0430	0.0472	0.0516	0.0560
30	38.7	0.0186	0.0231	0.0277	0.0325	0.0373	0.0423	0.0473	0.0524	0.0577	0.0629	0.0683
33	42.4	0.0223	0.0277	0.0332	0.0389	0.0447	0.0506	0.0567	0.0628	0.0690	0.0754	0.0818
36	46.1	0.0263	0.0326	0.0391	0.0458	0.0527	0.0597	0.0668	0.0740	0.0814	0.0889	0.0964
39	49.8	0.0306	0.0379	0.0455	0.0533	0.0613	0.0694	0.0777	0.0861	0.0947	0.1034	0.1122
42	53.5	0.0352	0.0436	0.0524	0.0613	0.0705	0.0799	0.0894	0.0991	0.1089	0.1189	0.1291
45	57.2	0.0401	0.0497	0.0597	0.0699	0.0803	0.0910	0.1019	0.1129	0.1241	0.1335	0.1470
48	60.9	0.0453	0.0562	0.0674	0.0790	0.0908	0.1028	0.1151	0.1276	0.1402	0.1531	0.1661
51	64.6	0.0508	0.0630	0.0756	0.0885	0.1018	0.1153	0.1291	0.1431	0.1573	0.1717	0.1863
54	68.3	0.0566	0.0702	0.0842	0.0987	0.1134	0.1285	0.1438	0.1594	0.1952	0.1913	0.2076
57	72.0	0.0627	0.0777	0.0933	0.1093	0.1256	0.1423	0.1593	0.1766	0.1941	0.2119	0.2299
60	75.7	0.0690	0.0857	0.1028	0.1204	0.1384	0.1568	0.1755	0.1946	0.2139	0.2335	0.2534
63	79.4	0.0757	0.0939	0.1127	0.1320	0.1518	0.1720	0.1925	0.2134	0.2346	0.2561	0.2778
66	83.1	0.0827	0.1026	0.1231	0.1442	0.1658	0.1878	0.2120	0.2330	0.2561	0.2796	0.3034
69	86.8	0.0899	0.1116	0.1339	0.1568	0.1803	0.2042	0.2286	0.2534	0.2786	0.3041	0.3300
72	90.5	0.0975	0.1209	0.1451	0.1700	0.1954	0.2214	0.2478	0.2747	0.3020	0.3296	0.3577
75	94.1	0.1033	0.1306	0.1568	0.1836	0.2111	0.2391	0.2677	0.2967	0.3262	0.3561	0.3864
78	97.8	0.1134	0.1407	0.1689	0.1978	0.2273	0.2575	0.2883	0.3196	0.3513	0.3835	0.4161
81	101.5	0.1218	0.1511	0.1814	0.2124	0.2442	0.2766	0.3096	0.3432	0.3773	0.4119	0.4469
84	105.2	0.1305	0.1691	0.1943	0.2275	0.2616	0.2963	0.3317	0.3676	0.4042	0.4412	0.4787
87	108.9	0.1394	0.1730	0.2076	0.2431	0.2795	0.3166	0.3544	0.3929	0.4319	0.4715	0.5116
90	112..6	0.1486	0.1844	0.2213	0.2592	0.2980	0.3376	0.3779	0.4189	0.4605	0.5027	0.5455
93	116.3	0.1581	0.1962	0.2355	0.2758	0.3171	0.3592	0.4021	0.4457	0.4900	0.5349	0.5804
96	120.0	0.1679	0.2084	0.2501	0.2929	0.3367	0.3814	0.4270	0.4733	0.5203	0.5680	0.6163
99	123.7	0.1780	0.2209	0.2651	0.3104	0.3569	0.4043	0.4525	0.5016	0.5515	0.6020	0.6532
102	127.4	0.1883	0.2337	0.2805	0.3285	0.3776	0.4277	0.4788	0.5308	0.5835	0.6370	0.6912
105	131.1	0.1990	0.2469	0.2963	0.3470	0.3989	0.4519	0.5058	0.5607	0.6164	0.6729	0.7301
108	134.8	0.2098	0.2604	0.3125	0.3660	0.4207	0.4766	0.5335	0.5913	0.6501	0.7097	0.7701
111	138.5	0.2210	0.2742	0.3291	0.3854	0.4431	0.5019	0.5619	0.6228	0.6847	0.7474	0.8110
114	142.2	0.2324	0.2884	0.3461	0.4054	0.4660	0.5279	0.5909	0.6550	0.7201	0.7861	0.8530
117	145.9	0.2441	0.3029	0.3635	0.4258	0.4895	0.5545	0.6207	0.6880	0.7564	0.8257	0.8959
120	149.6	0.2561	0.3178	0.3814	0.4467	0.5135	0.5817	0.6511	0.72117	0.7935	0.8662	0.9399

Table 14. Continued.

GBH (cm)	BG (cm)	Volume in cubic meters for the height in meters											
		9	10	11	12	13	14	15	16	17	18	19	20
81	101.5	0.2442	0.2766	0.3096	0.3432	0.3773	0.4119	0.4469	0.4824	0.5183	0.5545	0.5912	0.6282
84	105.2	0.2616	0.2963	0.3317	0.3676	0.4042	0.4412	0.4787	0.5167	0.5552	0.5940	0.6333	0.6729
87	108.9	0.2795	0.3166	0.3544	0.3929	0.4319	0.4715	0.5116	0.5511	0.5933	0.6348	0.6767	0.7191
90	112.6	0.2980	0.3376	0.3779	0.4189	0.4605	0.5027	0.5455	0.5888	0.6326	0.6768	0.7216	0.7667
93	116.3	0.3171	0.3592	0.4021	0.4457	0.4900	0.5349	0.5804	0.6264	0.6730	0.7201	0.7677	0.8158
96	120.0	0.3367	0.3814	0.4270	0.4733	0.5203	0.5680	0.6163	0.6652	0.7147	9.7647	0.8152	0.8662
99	123.7	0.3569	0.4043	0.4525	0.5016	0.5515	0.6020	0.6532	0.7051	0.7575	0.8105	0.8641	0.9182
102	127.4	0.3776	0.4277	0.4788	0.5308	0.5835	0.6370	0.6912	0.7460	0.8015	0.8576	0.9143	0.9715
105	131.1	0.3989	0.4519	0.5058	0.5607	0.6164	0.6729	0.7301	0.7881	0.8467	0.9059	0.9658	1.0262
108	134.8	0.4207	0.4766	0.5335	0.5913	0.6501	0.7097	0.7701	0.8312	0.8930	0.9555	1.0186	1.0824
111	138.5	0.4431	0.5019	0.5619	0.6228	0.6847	0.7474	0.8110	0.8754	0.9405	1.0063	1.0728	1.1400
114	142.2	0.4660	0.5279	0.5909	0.6550	0.7210	0.7861	0.8530	0.9207	0.9892	1.0584	1.1283	1.1989
117	145.9	0.4895	0.5545	0.6207	0.6880	0.7564	0.8257	0.8959	0.9670	1.0390	1.1117	1.1851	1.2593
120	149.6	0.5135	0.5817	0.6511	0.7217	0.7935	0.8662	0.9399	1.0145	1.0899	1.1662	1.2433	1.3211
123	153.3	0.5380	0.6095	0.6823	0.7562	0.8314	0.9076	0.9848	1.0630	1.1420	1.2220	1.3027	1.3842
126	157.0	0.5631	0.6379	0.7141	0.7915	0.8702	0.9499	1.0307	1.1125	1.1953	1.2789	1.3635	1.4488
129	160.7	0.5887	0.6669	0.7466	0.8275	0.9098	0.9931	1.0776	1.1632	1.2497	1.3371	1.4255	1.5147
132	164.4	0.6149	0.6966	0.7797	0.8643	0.9502	1.0373	1.1255	1.2149	1.3052	1.3966	1.4889	1.5820
135	168.1	0.6416	0.7268	0.8136	0.9018	0.9914	1.0823	1.1744	1.2686	1.3619	1.4572	1.5535	1.6507
138	171.8	0.6688	0.7577	0.8481	0.9401	1.0335	1.1283	1.2242	1.3214	1.4197	1.5191	1.6194	1.7208
141	175.5	0.6966	0.7891	0.8833	0.9791	1.0764	1.1751	1.2751	1.3763	1.4786	1.5821	1.6867	1.7922
144	179.2	0.7537	0.8538	0.9558	1.0594	1.1647	1.2715	1.3796	1.4891	1.5999	1.7119	1.8250	1.9392
147	182.9	0.7249	0.8212	0.9192	1.0189	1.1202	1.2228	1.3269	1.4322	1.5387	1.6464	1.7552	1.8650
150	186.6	0.7831	0.8871	0.9930	1.1007	1.2101	1.3210	1.4334	1.5471	1.6622	1.7785	1.8961	2.0147
153	190.3	0.8130	0.9209	1.0309	1.1427	1.2562	1.3714	1.4881	1.6062	1.7256	1.8464	1.9684	2.0916
156	194.0	0.8434	0.9554	1.0695	1.1855	1.3032	1.4227	1,5437	1.6663	1.7902	1.9155	2.0420	2.1698
159	197.7	0.8743	0.9904	1.1087	1.2289	1.3510	1.4749	1.6004	1.7274	1.8559	1.9857	2.1170	2.2494
162	201.4	0.9058	1.0261	1.1486	1.2732	1.3997	1.5280	1.6579	1.7895	1.9226	2.0572	2.1931	2.3304
165	205.1	0.9378	1.0623	1.1891	1.3181	1.4491	1.5819	1.7165	1.8527	1.9905	2.1298	2.2706	2.4127
168	208.8	0.9703	1.0991	1.2304	1.3638	1.4993	1.6367	1.7760	1.9170	2.0595	2.2037	2.3493	2.4963
171	212.5	1.0033	1.1365	1.2722	1.4102	1.5504	1.6925	1.8365	1.9822	2.1297	2.2787	2.4293	2.5813
174	216.2	1.0369	1.1745	1.3148	1.4574	1.6022	1.7491	1.8979	2.0485	2.2009	2.3549	2.5105	2.6676
177	219.9	1.0709	1.2131	1.3580	1.5053	1.6548	1.8065	1.9602	2.1158	2.2732	2.4323	2.5930	2.7553
180	223.6	1.1055	1.2523	1.4019	1.5539	1.7083	1.8649	2.0235	2.1841	2.3466	2.5108	2.6767	2.8443
183	227.3	1.1406	1.2921	1.4464	1.6032	1.7625	1.9241	2.0878	2.2535	2.4211	2.5906	2.7617	2.9346
186	230.9	1.1762	1.3324	1.4915	1.6533	1.8176	1.9842	2.1530	2.3239	2.467	2.6715	2.8480	3.0262
189	234.6	1.2124	1.3734	1.5374	1.7041	1.8734	2.0452	2.2191	2.3953	2.5734	2.7535	2.9355	3.1192
192	238.3	1.2490	1.4149	1.5838	1.7556	1.9301	2.1070	2.2862	2.4677	2.6512	2.8368	3.0242	3.2135
195	242.0	1.2862	1.4570	1.6310	1.8079	1.9875	2.1697	2.3543	2.5411	2.7301	2.9212	3.1142	3.3091
198	245.7	1.3239	1.4997	1.6788	1.8608	2.0457	2.2332	2.4232	2.6256	2.8101	3.0068	3.2055	3.4061
201	249.4	1.3621	1.5430	1.7272	1.9145	2.1047	2.2977	2.4931	2.6910	2.8912	3.0935	3.2979	3.5043

Table. 15 Conversion factors to estimate the underbark volumes up to different top end diameters for **RAIN TREE** planted on the roadsides and embankments in the coastal areas of Bangladesh.

GBH	BG (cm)	Fub	F5	F10	F15	F20
15	20.2	0.5877	0.4797	0.2010		
18	23.9	0.6350	0.5245	0.2371		
21	27.6	0.6737	0.5621	0.2718		
24	31.3	0.7058	0.5939	0.3052		
27	35.0	0.7329	0.6212	0.3372		
30	38.7	0.7560	0.6449	0.3680		
33	42.4	0.7760	0.6656	0.3975	0.0040	
36	46.1	0.7934	0.6838	0.4257	0.0392	
39	49.8	0.8086	0.7000	0.4528	0.0737	
42	53.5	0.8221	0.7145	0.4786	0.1074	
45	57.2	0.8341	0.7275	0.5033	0.1404	
48	60.9	0.8447	0.7392	0.5268	0.1727	
51	64.6	0.8543	0.7599	0.5493	0.2042	
54	68.3	0.8630	0.7596	0.5707	0.2349	0.0334
57	72.0	0.8708	0.7684	0.5911	0.2650	0.0661
60	75.7	0.8779	0.7765	0.6105	0.2943	0.0982
63	79.4	0.8844	0.7840	0.6289	0.3228	0.1295
66	83.1	0.8903	0.7908	0.6464	0.3506	0.1601
69	86.8	0.8957	0.7972	0.6630	0.3777	0.1900
72	90.5	0.9007	0.8030	0.6787	0.4040	0.2191
75	94.1	0.9053	0.8085	0.6936	0.4296	0.2476
78	97.8	0.9095	0.8136	0.7077	0.4545	0.2753
81	101.5	0.9134	0.8183	0.7210	0.4786	0.3023
84	105.2	0.9170	0.8227	0.7335	0.5019	0.3285
87	108.9	0.9203	0.8268	0.7454	0.5246	0.3541
90	112.6	0.9234	0.8307	0.7565	0.5465	0.3789
93	116.3	0.9262	0.8343	0.7670	0.5676	0.4030
96	120.0	0.9289	0.8377	0.7769	0.5880	0.4264
99	123.7	0.9314	0.8409	0.7862	0.6077	0.4490
102	127.4	0.9337	0.8439	0.7948	0.6266	0.4710
105	131.1	0.9358	0.8467	0.8029	0.6448	0.4922
108	134.8	0.9378	0.8494	0.8105	0.6623	0.5127
111	138.5	0.9396	0.8519	0.8176	0.6790	0.5324
114	142.2	0.9414	0.8543	0.8241	0.6950	0.5515
117	145.9	0.9430	0.8566	0.8302	0.7102	0.5698
120	149.6	0.9445	0.8587	0.8359	0.7247	0.5874
123	153.3	0.9459	0.8607	0.8411	0.7385	0.6043
126	157.0	0.9472	0.8626	0.8459	0.7515	0.6205
129	160.7	0.9484	0.8644	0.8503	0.7638	0.6359
132	164.4	0.9495	0.8661	0.8544	0.7753	0.6506
135	168.1	0.9505	0.8678	0.8581	0.7861	0.6646
138	171.8	0.9515	0.8693	0.8614	0.7961	0.6779
141	175.5	0.9524	0.8708	0.8644	0.8055	0.6905
144	179.2	0.9533	0.8722	0.8671	0.8140	0.7023
147	182.9	0.9540	0.8735	0.8695	0.8219	0.7134
150	186.6	0.9547	0.8747	0.8717	0.8290	0.7238