APPENDIX I: ANOVA analysis

Table 19. ANOVA of Relative Growth Rate (RGR) of basal diameter of *Artocarpus lakoocha* percent per year. Significant differences were further analyzed using the LSD Test. Mean RGR is included in the LSD results.

$**$ = p < 0.01, $*$ = p < 0.05, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	119982.685	6	19997.114	11.792	.000	
Block	86704.375	2	43352.188	25.564	.000	**
Container	33373.405	2	16686.703	9.840	.000	**
Fertilize	124.519	1	124.519	.073	.787	ns
Root pruning	834.900	1	834.900	.492	.483	ns
Explained	119982.685	6	19997.114	11.792	.000	
Residual	565833.713	323	1751.807			
Total	685816.398	329	2084.548			

LSD Test

Block: open   =   medium shade   >   under shade
          (124.20 ± 42.50)   (119.67 ± 42.50)   (87.51 ± 39.49)

Container: bag 3 x 7 in.   =   bag 2.5x 9 in.   >   REX tray
          (122.29 ± 51.11)   (112.39 ± 45.26)   (98.57 ± 35.29)

Table 20.　　ANOVA of Relative Growth Rate (RGR) of height of *Artocarpus lakoocha* percent per year. Significant differences were further analyzed using the LSD Test. Mean RGR is included in the LSD results.

** = $p < 0.01$, * = $p < 0.05$, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	893637.914	6	148939.652	56.566	.000	
Block	724944.725	2	362472.363	137.663	.000	**
Container	158220.254	2	79110.127	30.045	.000	**
Fertilize	8405.902	1	8405.902	3.192	.075	ns
Root pruning	5648.173	1	5648.173	2.145	.144	ns
Explained	893637.914	6	148939.652	56.566	.000	
Residual	989224.256	323	3062.614			
Total	1882862.170	329	5722.985			

LSD Test

Block:	medium shade	=	open		>	under shade
	(186.60 ± 62.60)		(177.60 ± 64.97)			(81.80 ± 49.63)

Container:	bag 3 x 7 in.	>	bag 2.5 x 9 in.	>	REX tray
	(168.30 ± 77.00)		(163.16 ± 84.64)		(120.84 ± 4.37)

Table 21.   ANOVA of final basal diameter of *Artocarpus lakoocha* under different
treatments over ten months. Significant differences were further analyzed
using the LSD Test. Mean final height is included in the LSD results.
$**$ = p < 0.01, $*$ = p < 0.05, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	1.288	6	.215	14.763	.000	
Block	.839	2	.420	28.852	.000	**
Container	.444	2	.222	15.275	.000	**
Fertilizer	.003	1	.003	.207	.650	ns
Root pruning	.006	1	.006	.405	.525	ns
Explained	1.288	6	.215	14.763	.000	
Residual	4.761	323	.015			
Total	6.049	329	.018			

LSD Test

Block:	open	=	medium shade	>	under shade
	(0.50 ± 0.13)		(0.48 ± 0.14)		(0.38 ± 0.10)

Container:	bag 3 x 7 in.	>	REX tray	=	bag 2.5x 9 in.
	(0.50 ± 0.17)		(0.42 ± 0.09)		(0.44 ± 0.13)

Table 22.   ANOVA of final height of *Artocarpus lakoocha* under different treatments over ten months. Significant differences were further analyzed using the LSD Test. Mean final height is included in the LSD results.

** = $p < 0.01$, * = $p < 0.05$, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	22547.637	6	3757.939	38.569	.000	
Block	20671.666	2	10335.830	106.079	.000	**
Container	910.822	2	455.411	4.674	.053	ns
Fertilizer	663.237	1	663.237	6.807	.010	**
Root Pruning	221.218	1	221.218	2.270	.133	ns
Explained	22547.637	6	3757.939	38.569	.000	
Residual	36169.394	323	111.98			
Total	58717.031	329	178.471			

LSD Test

Block: medium shade   =   open   >   under shade
          (34.46 ± 12.46)   (34.03 ± 12.11)   (17.20 ± 5.51)

Fertilizer: osmocote   >   soluble
          (30.59 ± 15.20)   (27.24 ± 11.13)

Table 23.   ANOVA of shoot per root ratio of *Artocarpus lakoocha* under different treatments over ten months. Significant differences were further analyzed using the LSD Test. Mean final height is included in the LSD results.

** = p < 0.01, * = p < 0.05, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	54.840	6	9.140	16.472	.000	
Block	38.016	2	19.008	34.256	.000	**
Container	13.638	2	6.819	12.289	.000	**
Fertilizer	1.218	1	1.218	2.194	.139	ns
Root Pruning	1.969	1	1.969	3.549	.060	*
Explained	54.840	6	9.140	16.472	.000	
Residual	195.871	323	0.555			
Total	250.711	329	0.698			

LSD Test

Block: under shade   >   medium shade   >   open
          (1.92 ± 0.89)   (1.48 ± 0.81)   (1.12 ± 0.59)

Container: bag 2.5x9 in   =   bag 3x7 in   >   REX trays
          (1.69 ± 0.89)   (1.60 ± 0.90)   (1.24 ± 0.63)

Root pruning: air   >   hand
                (1.58 ± 0.89)   (1.43 ± 0.77)

Table 24.   ANOVA of relative growth rate (RGR) of basal diameter of *Balakata*
              baccata percent per year. Significant differences were further analyzed
              using the LSD Test. Mean RGR is included in the LSD results.
** = p < 0.01, * = p < 0.05, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	88900.611	6	14816.768	6.226	.000	
Block	58653.220	2	29326.610	12.324	.000	**
Container	35246.246	2	17623.123	7.406	.001	**
Fertilizer	.598	1	.598	.000	.987	ns
Root pruning	13869.193	1	13869.193	5.828	.017	**
Explained	88900.611	6	14816.768	6.226	.000	
Residual	565896.609	230	2460.420			
Total	654797.220	236	2774.564			

LSD Test

Block:	medium shade	=	open		>	under shade
	(198.75± 52.69)		(187.57 ± 53.59)			(164.12 ±44.69)

Container:	bag 3 x 7 in.	>	bag 2.5x 9 in.		>	REX tray
	(193.27 ± 65.91)		(188.13 ± 48.08)			(171.98 ± 38.78)

Root pruning:	hand	>	air
	(190.91 ± 58.55)		(179.62 ± 43.49)

Table 25.   ANOVA of relative growth rate (RGR) of height of *Balakata baccata* percent per year. Significant differences were further analyzed using the LSD Test. Mean RGR is included in the LSD results.
** = p < 0.01, * = p < 0.05, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	513009.844	6	85501.641	9.489	.000	
Block	205774.634	2	102887.317	11.419	.000	**
Container	314807.484	2	157403.742	17.470	.000	**
Fertilizer	50540.095	1	50540.095	5.609	.019	*
Root pruning	122.269	1	122.269	.014	.907	ns
Explained	513009.844	6	85501.641	9.489	.000	
Residual	2342402.147	230	10184.357			
Total	2855411.992	236	12099.203			

LSD Test

Block:	medium shade (301.27±105.12)	>	open (265.85 ±101.73)	=	under shade (240.75±17.76)
Container:	bag 3 x 7 in. (309.99±116.77)	>	bag 2.5 x 9 in. (274.24±107.31)	>	REX tray (226.52±85.37)
Fertilizer:	osmocote (287.37±106.75)	>	soluble (258.96±112.05)		

Table 26. ANOVA of final basal diameter of *Balakata baccata* under different treatments over ten months. Significant differences were further analyzed using the LSD Test. Mean final height is included in the LSD results.

$** = p < 0.01$, $* = p < 0.05$, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	1.194	6	.199	13.822	.000	
Block	.726	2	.363	25.232	.000	**
Container	.399	2	.199	13.849	.000	**
Fertilizer	.194	1	.194	13.447	.000	**
Root pruning	.038	1	.038	2.641	.106	ns
Explained	1.194	6	.199	13.822	.000	
Residual	3.934	230	.017			
Total	5.128	236	.022			

LSD Test

Block: open   = medium shade   > under shade
          (0.60 ± 0.15)   (0.59 ± 0.15)   (0.48 ± 0.11)

Container: bag 2.5x 9 in.   > REX tray   = bag 3 x 7 in.
          (0.61 ± 0.14)   (0.53 ± 0.11)   (0.54 ± 0.18)

Fertilizer: soluble   > osmocote
          (0.90 ± 0.16)   (0.53 ± 0.14)

Table 27.   ANOVA of final height of *Balakata baccata* under different treatments over ten months. Significant differences were further analyzed using the LSD Test. Mean final height is included in the LSD results.

** = $p < 0.01$, * = $p < 0.05$, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	16474.385	6	2745.731	11.602	.000	
Block	10032.822	2	5016.411	21.197	.000	**
Container	7562.146	2	3781.073	15.977	.000	**
Fertilizer	42.128	1	42.128	.178	.674	ns
Root pruning	2566.114	1	2566.114	10.843	.001	**
Explained	16474.385	6	2745.731	11.602	.000	
Residual	60526.577	230	236.159			
Total	77000.962	236	326.275			

LSD Test

Block: medium shade   >   open   >   under shade
          (57.78 ± 19.20)   (49.73 ± 14.08)   (43.83 ± 17.30)

Container: bag 2.5x 9 in.   >   bag 3 x 7 in.   >   REX tray
          (56.56 ± 18.08)   (52.42 ± 17.52)   (46.82 ± 15.15)

Root pruning: hand   >   air
          (53.54 ± 18.46)   (48.87 ± 17.28)

Table 28.   ANOVA of shoot per root ratio of *Balakata baccata* under different treatments over ten months. Significant differences were further analyzed using the LSD Test. Mean final height is included in the LSD results.

$** = p < 0.01$, $* = p < 0.05$, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	437.396	6	72.899	10.291	.000	
Block	297.034	2	148.517	20.966	.000	**
Container	70.047	2	35.024	4.944	.008	**
Fertilizer	35.675	1	35.675	5.036	.026	*
Root pruning	0.186	1	0.186	0.026	.872	ns
Explained	437.396	6	72.899	10.291	.000	
Residual	1551.354	219	7.084			
Total	1988.750	225	8.839			

LSD Test

Block: under shade   >   open   >   medium shade
        (6.82 ± 4.08)   (4.16 ± 2.02)   (4.12 ± 1.90)

Container: bag 3 x 7 in.   >   bag 2.5 x 9 in.   >   REX tray
        (5.43 ± 2.08)   (5.23 ± 3.87)   (3.84 ± 2.20)

Fertilizer: osmocote   >   soluble
        (5.29 ± 2.41)   (4.51 ± 3.42)

Table 29.   ANOVA of relative growth rate (RGR) of basal diameter *Horsfieldia thorelii* percent per year. Significant differences were further analyzed using the LSD Test. Mean RGR is included in the LSD results.

** = $p < 0.01$,   * = $p < 0.05$,   ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	34704.151	6	5784.025	7.108	.000	
Block	15885.612	2	7942.806	9.760	.000	**
Container	4161.537	2	2080.768	2.557	.079	ns
Fertilize	308.697	1	308.697	.379	.538	ns
Root pruning	13998.770	1	13998.770	17.202	.000	**
Explained	34704.151	6	5784.025	7.108	.000	
Residual	293760.601	323	909.476			
Total	328464.752	329	998.373			

LSD Test

Block: medium shade   =   open   >   under shade
         (65.40 ± 29.59)   (64.37 ± 34.95)   (49.36 ± 37.47)

Root pruning: air   >   hand
                (66.59± 33.02)   (53.48 ± 28.67)

Table 30.   ANOVA of relative growth rate (RGR) of height of *Horsfieldia thorelii* percent per year. Significant differences were further analyzed using the LSD Test. Mean RGR is included in the LSD results. ** = p < 0.01, * = p < 0.05, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	164639.450	6	27439.908	18.412	.000	
Block	112452.999	2	56226.499	37.727	.000	**
Container	46074.984	2	23037.492	15.458	.000	**
Fertilize	6126.914	1	6126.914	4.111	.053	ns
Root pruning	264.039	1	264.039	.177	.674	ns
Explained	164639.450	6	27439.908	18.412	.000	
Residual	519113.663	323	1607.136			
Total	683753.113	329	2078.277			

LSD Test

Block:	medium shade	=	open		>	under shade
	(126.03 ± 39.78)		(115.96 ± 46.96)			(82.77 ± 38.69)

Container:	bag 3 x 7 in.	>	bag 2.5 x 9 in.		=	REX tray
	(124.27 ± 45.22)		(104.50 ± 43.87)			(96.30 ± 43.77)

Table 31.   ANOVA of final basal diameter of *Horsfieldia thorelii* under different treatments over ten months. Significant differences were further analyzed using the LSD Test. Mean final height is included in the LSD results.

** = $p < 0.01$, * = $p < 0.05$, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	1.052	6	.175	20.266	.000	
Block	.588	2	.294	33.992	.000	**
Container	.213	2	.107	12.328	.000	**
Fertilize	.002	1	.002	.226	.635	ns
Root pruning	.239	1	.239	27.607	.000	**
Explained	1.052	6	.175	20.266	.000	
Residual	3.180	323	0.010			
Total	4.232	329	0.013			

LSD Test

Block: medium shade   =   open   >   under shade
           (0.67 ± 0.10)   (0.65 ± 0.12)   (0.57 ± 0.09)

Container: bag 3 x 7 in.   >   REX tray   =   bag 2.5x 9 in
           (0.66 ± 0.13)   (0.62 ± 0.09)   (0.60 ± 0.11)

Root pruning: air   >   hand
               (0.66 ± 0.12)   (0.60 ± 0.10)

Table 32. ANOVA of final height of *Horsfieldia thorelii* under different treatments over ten months. Significant differences were further analyzed using the LSD Test. Mean final height is included in the LSD result.

** = p < 0.01, * = p < 0.05, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	8705.878	6	1450.980	30.510	.000	
Block	6875.068	2	3437.534	72.283	.000	**
Container	1506.248	2	753.124	15.836	.000	**
Fertilize	339.524	1	339.524	7.139	.008	**
Root pruning	30.369	1	30.369	.639	.425	ns
Explained	8705.878	6	1450.980	30.510	.000	
Residual	16989.822	323	52.600			
Total	25695.700	329	78.102			

LSD Test

Block: medium shade   >   open   >   under shade
          (35.98 ± 8.70)   (31.00 ± 8.50)   (24.85 ± 5.62)

Container: bag 3 x 7 in.   >   bag 2.5x 9 in.   >   REX tray
            (33.51 ± 9.95)   (30.00 ± 8.1894)   (28.45 ± 7.86)

Fertilizer: osmocote   >   soluble
             (31.78 ± 9.23)   (29.73 ± 8.64)

Table 33.   ANOVA of shoot per root ratio of *Horsfieldia thorelii* under different treatments over ten months. Significant differences were further analyzed using the LSD Test. Mean final height is included in the LSD results.

$** = p < 0.01$, $* = p < 0.05$, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	16.925	6	2.821	8.562	.000	
Block	8.306	2	4.153	12.606	.000	**
Container	1.729	2	0.865	2.625	.074	ns
Fertilize	4.476	1	4.476	13.587	.000	**
Root pruning	2.414	1	2.414	7.326	.007	**
Explained	16.925	6	2.821	8.562	.000	
Residual	116.297	353	0.329			
Total	133.222	359	0.371			

LSD Test

Block:	under shade	=	medium shade	>	open
	(1.89 ± 0.76)		(1.80 ± 0.57)		(1.53 ± 0.39)

Fertilizer:	osmocote	>	soluble
	(1.85 ± 0.73)		(1.62 ± 0.44)

Root pruning:	air	>	hand
	(1.82 ± 0.65)		(1.65 ± 0.56)

Table 34.   ANOVA of final height of the three native tree species. Significant differences were further analyzed using the LSD Test. Mean RGR is included in the LSD results.

** = p < 0.01, * = p < 0.05, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	118640.179	8	14830.022	104.716	.000	
Block	31770.582	2	15885.291	112.167	.000	**
Container	3205.651	2	1602.825	11.318	.000	**
Fertilizer	804.663	1	804.663	5.682	.017	*
Root pruning	996.560	1	996.560	7.037	.008	**
Species	73108.181	2	36554.091	258.111	.000	**
Explained	118640.179	8	14830.022	104.716	.000	
Residual	125759.837	888	141.621			
Total	244400.016	896	272.768			

LSD Test

Block: medium shade   >   open   >   under shade
          (41.94 ± 17.43)   (36.93 ± 13.81)   (26.36 ± 13.98)

Container: bag 2.5 x 9 in.   =   bag 3 x 7 in.   >   REX tray
            (37.02 ± 18.76)   (36.84 ± 16.81)   (32.35 ± 12.85)

Fertilizer: osmocote   >   soluble
             (36.73 ± 17.16)   (34.24 ± 15.76)

Root pruning: hand   >   air
                 (36.86 ± 17.63)   (34.02 ± 15.12)

Species: *B. baccata*   >   *H. thorelii*   =   *A. lakoocha*
            (51.49 ± 18.06)   (30.60 ± 8.84)   (28.87 ± 13.36)

Table 35. ANOVA of relative growth rate (RGR) of basal diameter of the three native tree species. Significant differences were further analyzed using the LSD Test. Mean RGR is included in the LSD results.
** = p < 0.01, * = p < 0.05, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	2360211.999	8	295026.500	175.283	.000	
Block	132329.122	2	66164.561	39.310	.000	**
Container	46116.171	2	23058.085	13.699	.000	**
Fertilizer	476.003	1	476.003	.283	.595	ns
Root pruning	2.206	1	2.206	.001	.971	ns
Species	093190.302	2	1046595.151	621.810	.000	**
Explained	2360211.999	8	295026.500	175.283	.000	
Residual	1494630.024	888	1683.142			
Total	3854842.024	896	4302.279			

LSD Test

Block: medium shade   =   open   >   under shade
           (124.68 ± 69.24)   (118.02 ± 64.46)   (90.92 ± 57.02)

Container: bag 3 x 7 in.   =   bag 2.5 x 9 in. >   REX tray
           (120.45 ± 70.99)   (114.81 ± 68.19)   (100.03±53.99)

Species: *B. baccata*   >   *A. lakoocha*   >   *H. thorelii*
           (185.96 ± 52.67)   (111.10 ± 45.66)   (60.09 ± 31.6)

Table 36. ANOVA of relative growth rate (RGR) of height of the three native tree species. Significant differences were further analyzed using the LSD Test. Mean RGR is included in the LSD results.

** = p < 0.01, * = p < 0.05, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	5182172.014	8	647771.502	138.019	.000	
Block	840933.464	2	420466.732	89.588	.000	**
Container	399680.762	2	199840.381	42.579	.000	**
Fertilizer	53911.306	1	53911.306	11.487	.001	**
Root pruning	990.415	1	990.415	.211	.646	ns
Species	3561396.902	2	1780698.451	379.409	.000	**
Explained	5182172.014	8	647771.502	138.019	.000	
Residual	4167693.720	888	4693.349			
Total	9349865.735	896	10435.118			

LSD Test

Block:	medium shade	>	sun	>	under shade
	(200.02 ± 102.09)		(177.16 ± 91.44)		(119.22± 95.65)

Container:	bag 3 x 7 in.	=	bag 2.5 x 9 in.	>	REX tray
	(189.97 ± 110.46)		(174.48 ± 105.96)		(135.48± 77.91)

Fertilizer:	osmocote	>	Soluble
	(177.20 ± 106.65)		(157.98 ± 96.62)

Species:	B. baccata	>	A. lakoocha	>	H. thorelii
	(273.822 ± 110.00)		(150.46 ± 75.65)		(108.39± 45.59)

Table 37. ANOVA of basal diameter of the three native tree species. Significant differences were further analyzed using the LSD Test. Mean RGR is included in the LSD results.

$** = p < 0.01$, $* = p < 0.05$, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	13.003	8	1.625	51.827	.000	
Block	5.897	2	2.948	94.015	.000	**
Container	.394	2	.197	6.274	.002	**
Fertilizer	.035	1	.035	1.116	.291	ns
Root pruning	.026	1	.026	.815	.367	ns
Species	6.434	2	3.217	102.583	.000	**
Explained	20.918	71	.295	9.394	.000	
Residual	27.379	873	.031			
Total	48.297	944	.051			

LSD Test

Block:	open	=	medium shade	>	under shade	
	(0.62 ± 0.24)		(0.59 ± 0.22)		(0.42 ± 0.15)	
Container:	Bag 3 x 7 in.	=	bag 2.5 x 9 in	=	REX tray	
	(0.57 ± 0.27)		(0.55 ± 0.23)		(0.52 ± 0.16)	
Species:	*H. thorelii*	>	*B. Baccata*	>	*A. .lakoocha*	
	(0.64 ± 0.17)		(0.56 ± 0.24)		(0.45 ± 0.23)	

Table 38. ANOVA of shoot per root ratio of the three native tree species. Significant differences were further analyzed using the LSD Test. Mean RGR is included in the LSD result.

$** = p < 0.01$, $* = p < 0.05$, ns = not significant.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F	Significant
Main Effects	1629.500	8	203.688	158.578	.000	
Block	103.993	2	51.996	40.481	.000	**
Container	28.523	2	14.261	11.103	.000	**
Fertilizer	30.558	1	30.558	23.790	.000	**
Root pruning	0.035	1	0.035	0.027	.870	ns
Species	1472.125	2	736.063	573.051	.000	**
Explained	1629.500	8	203.688	158.578	.000	
Residual	1202.257	936	1.284			
Total	2831.758	944	3.000			

LSD Test

Block:	under shade	>	medium shade	=	open
	(2.70 ± 2.03)		(2.26 ± 1.53)		(2.00 ± 1.56)

container:	bag 2.5 x 9 in.	=	bag 3 x 7 in	>	REX tray
	(2.48 ± 1.88)		(2.47± 1.86)		(1.98 ± 1.36)

Fertilizer:	osmocote	>	Soluble
	(2.50 ± 1.89)		(2.13 ± 1.54)

Species:	*B. baccata*	>	*H. thorelii*	>	*A. lakoocha*
	(4.53 ± 2.10)		(1.74 ± 0.61)		(1.50± 0.83)

APPENDIX II: Number and percent of root score

Table 39. Number and percent of root score in different root pruning method and was analized by Chi-squre test

Root pruning	root score 1		root score 2		root score 3		root score 4		root score 5		root score 6		Total
	number	percent	number	percent	number	percent	number	percent	number	percent	number	percent	number
by air	115	55.02	140	51.47	127	51.84	75	40.11	4	33.33	5	25	466
by hand	94	44.98	132	48.53	118	48.16	112	59.89	8	66.67	16	75	480
Total	209	100	272	100	245	100	187	100	12	100	21	100	946

Table 40. Number and percent of root score in differect container type and was analized by Chi-squre test

Container	root score 1		root score 2		root score 3		root score 4		root score 5		root score 6		Total
	number	percent	number	percent	number	percent	number	percent	number	percent	number	percent	number
REX tray	126	60.29	71	26.1	22	8.98	86	46	0	0	0	0	305
2.5 x 9 in	52	24.88	98	36.03	142	57.96	24	12.83	5	41.67	3	14.29	324
3 x 7 in.	31	14.83	103	37.87	81	33.06	77	41.18	7	58.33	18	85.71	317
Total	209	100	272	100	245	100	187	100	12	100	21	100	946

Chi-squre test

root score	number	DF	root pruning Chi-squre	Significance	container Chi-squre	Significance
1	209	1	2.11	0.1463	71.4928	0
2	272	1	0.2353	0.6276	6.5368	0.0381
3	245	1	0.3306	0.5653	88.1714	0
4	187	1	7.3209	0.0068	36.0107	0
5	12	1	1.3333	0.2482	0.3333	0.5637
6	21	1	5.7619	0.0164	10.7143	0.0011

APPENDIX III: Production cost analysis per seedling per season.

<u>CONTAINER</u>

REX Tray

Cost		50	baht /tray	
Transplantation		20	baht/tray	

24 cells : 1 tray

1 cell	70/24	=	2.92	baht/seedling/ 12season
1 cell	2.92/12	=	0.243	baht/ seedling/season

Plastic bag 2.5" x 9"

Cost		30	baht/kilogram	
One kilogram has		236	bags	
Cost of 1 bag	30/236	=	0.127	baht/seedling/season

Plastic bag 3" x 7"

Cost		30	baht/kilogram	
One kilogram has		208	bags	
Cost of 1 bag	30/208	=	0.144	baht/seedling/season

<u>MEDIA</u>

Forest Soil	1,685,500	cm^3	=	1,000	baht
	1	cm^3	=	0.00059	baht/ cm^3
Coconut husk	98,400	cm^3	=	50	baht
	1	cm^3	=	0.000508	baht/ cm^3

Peanut husk	46,300	cm^3	=	25	baht
	1	cm^3	=	0.00054	baht/cm^3

Volume used

REX Tray	300	cm^3
Plastic bag 2.5" x 9"	800	cm^3
Plastic bag 3" x 7"	850	cm^3

Potting media cost / seedling / season

REX Tray

Use forest soil	150 cm^3 x 0.00059	=	0.0885	baht
Use coconut husk	75 cm^3 x 0.000508	=	0.0381	baht
Use peanut husk	75 cm^3 x 0.00054	=	0.0405	baht
		=	0.1671	baht/seedling/season

Plastic bag 2.5" x 9"

Use forest soil	400 cm^3 x 0.00059	=	0.236	baht
Use coconut husk	200 cm^3 x 0.000508	=	0.1016	baht
Use peanut husk	200 cm^3 x 0.00054	=	0.103	baht
		=	0.4456	baht/seedling/season

Plastic bag 3" x 7"

Use forest soil	425 cm^3 x 0.00059	=	0.2508	baht
Use coconut husk	212.5 cm^3 x 0.000508	=	0.1080	baht
Use peanut husk	212.5 cm^3 x 0.00054	=	0.1148	baht
		=	0.4736	baht/seedling/season

FERTILIZER

"Osmocote"	1,000 g	=	150	baht
	0.3 g	=	0.045	baht / seedling
use 4 time for season 0.045 x 4		=	0.18	baht / seedling / season

Soluble fertilizer	1,000 g	=	15	baht
	1.5 tablespoon (22.5 g)	=	0.3375	baht / 180 seedlings
use 20 time for season 0.3375 x 20		=	0.0375	baht / seedling / season

ROOT PRUNING

by air pruning

| Table size 90 x 180 cm (16,200 cm^2) | = | 1,000 | baht |

REX Tray	size 30 x 45 cm	=	1,350	cm^2
	12 trays	=	288	seedlings / table
	1 seedling	=	3.47	baht / seedling
	10 season / table	=	0.347	baht / seedling / season

plastic bag 2.5" x 9"

	bottom size	=	39.06	cm^2
		=	414	seedlings/ table
	1 seedling	=	2.42	baht / seedling
	10 season / table	=	0.242	baht / seedling / season

plastic bag 3" x 7"

bottom size	=	56.25	cm^2	
	=	288	seedlings / table	
1 seedling	=	3.47	baht / seedling	
10 season / table	=	0.347	baht / seedling / season	

by hand

Labor wages 1 day (8 hrs.)   =   28,800   seconds

1 day   =   150   baht

1 second   =   0.0052   baht / second

REX Tray

24 seedlings   time consuming for cut root   25   seconds

1 seedling   time consuming for cut root   1.042   seconds

1.042 x 0.0052 =   0.0054 baht / seedling / time

root pruning 4 times per season   0.0054 x 4 =   0.022 baht / seedling / season

Plastic bag 2.5" x 9"

1 seedling   time consuming for cut root   5   seconds

5 x 0.0052   =   0.026 baht / seedling / time

root cutting 4 time per season 0.026 x 4 = 0.104 baht / seedling / season

Plastic bag 3" x 7"

1 seedling   time consuming for cut root   5   seconds

5 x 0.0052   =   0.026 baht / seedling / time

root cutting 4 time per season 0.026 x 4 = 0.104 baht / seedling / season

LABOR COST

for seed collection

| | 1,000 | seeds | = | 100 | baht |
| | 1 | seed | = | 0.1 | baht/seed |

Labor wages

	1 day (8 hrs.)	=	150	baht
	8 hrs.	=	28,800	second
	1 second	=	0.0052	baht/second

for filling containers

REX Tray   1.25 second / seedling x 0.0052 baht/second

                        =   0.0065 baht / seedling

Plastic bag 2.5" x 9"   15 second / seedling x 0.0052 baht/second

                        =   0.078 baht / seedling

Plastic bag 3" x 7"   15 second / seedling x 0.0052 baht/second

                        =   0.078 baht / seedling

for fertilization

"Osmocote" 20 seedlings consuming time   60 second

                1 seedling consuming time   = 3 second

$$3 \times 0.0052 = 0.0156 \text{ baht / seedling / time}$$

use 4 time for season $0.0156 \times 4 = 0.0624$ baht / seedling / season

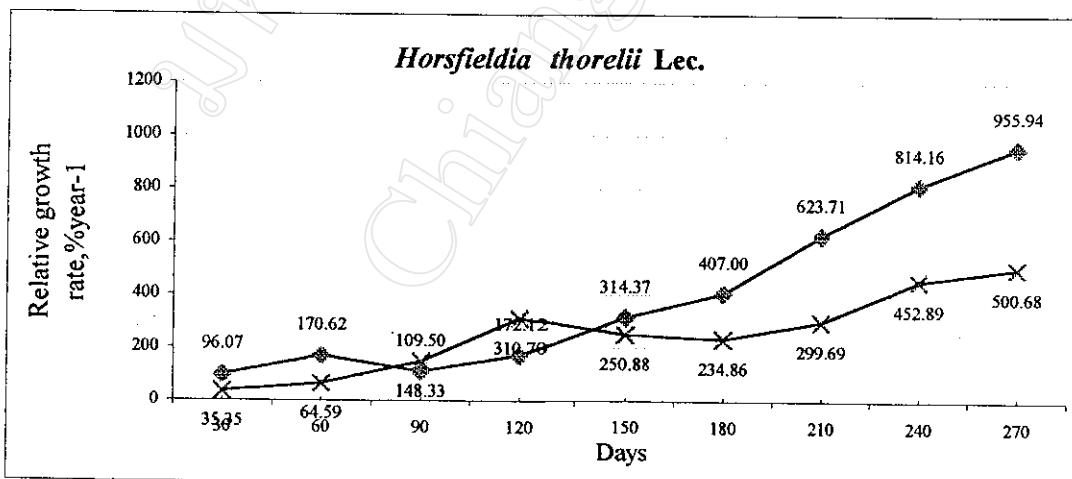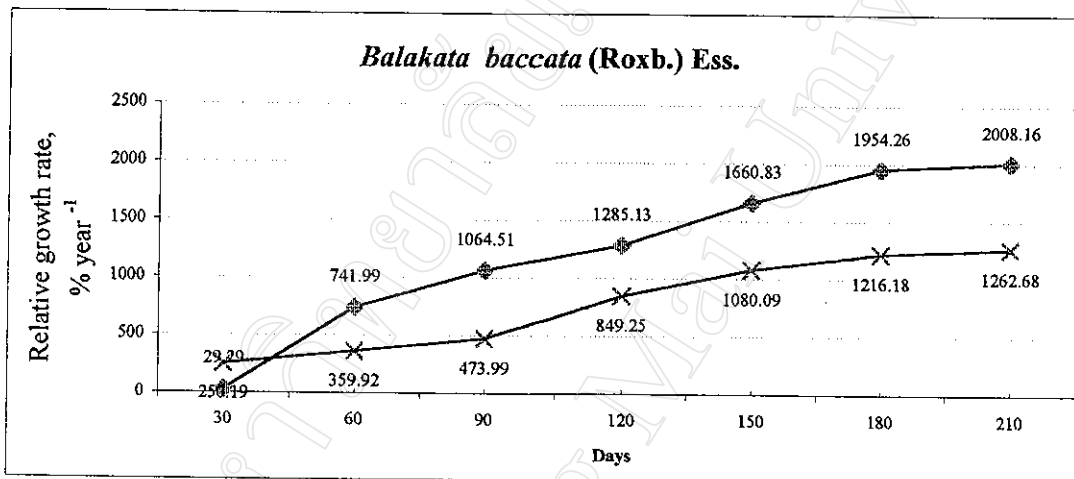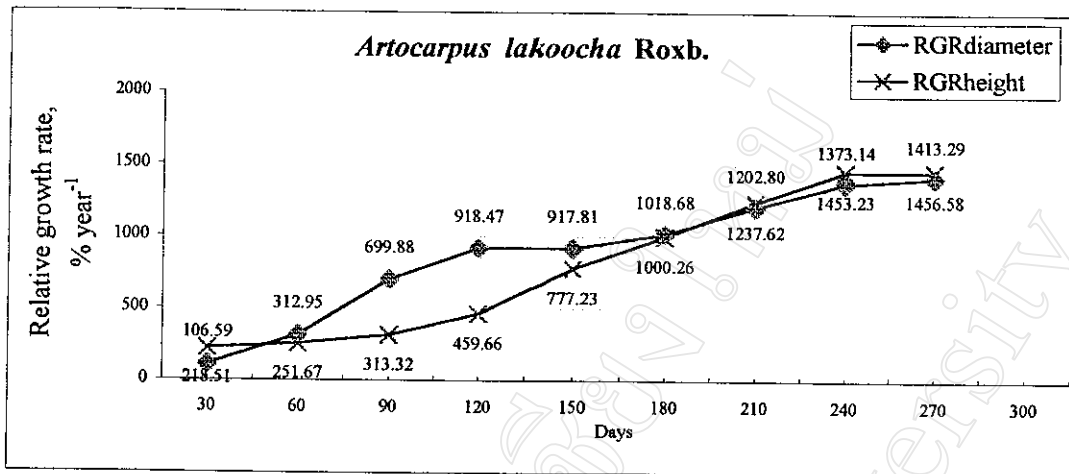| Soluble fertilizer	360	seedlings	consuming time	300 second
	1	seedling	consuming time	= 0.83 second

$$0.83 \times 0.0052 = 0.0043 \text{ baht / seedling / time}$$

use 20 time for season $0.0043 \times 20 = 0.0863$ baht / seedling / season

Total of labor cost = seed collection+ filling containers + fertilization

1. raised+REX tray+"Osmocote"	=0.1+0.0065+0.0624	=	0.1689
2. raised+REX tray+normal fertilizer	=0.1+0.0065+0.0863	=	0.1928
3. raised+plastic bag (2.5" x 9")+"Osmocote"	=0.1+0.078+0.0624	=	0.2404
4. raised+plastic bag (2.5" x 9")+soluble	=0.1+0.078+0.0863	=	0.2643
5. raised+plastic bag (3" x 7")+"Osmocote"	=0.1+0.078+0.0624	=	0.2404
6. raised+plastic bag (3" x 7")+soluble	=0.1+0.078+0.0863	=	0.2643
7. ground+REX tray+"Osmocote"	=0.1+0.0065+0.0624	=	0.1689
8. ground+REX tray+normal fertilizer	=0.1+0.0065+0.0863	=	0.1928
9. ground+plastic bag (2.5" x 9")+"Osmocote"	=0.1+0.078+0.0624	=	0.2404
10.ground+plastic bag (2.5" x 9")+soluble	=0.1+0.078+0.0863	=	0.2643
11. ground+plastic bag (3" x 7")+"Osmocote"	=0.1+0.078+0.0624	=	0.2404
12.ground+plastic bag (3" x 7")+soluble	=0.1+0.078+0.0863	=	0.2643

APPENDIX IV: RGR curve in which the percentage growth per year is graphed against age days.

Artocarpus lakoocha Roxb.

Balakata baccata (Roxb.) Ess.

Horsfieldia thorelii Lec.

CURRICULUM VITAE

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