

SUMMARY

In December 2011 Reforestación Grupo Internacional S.A. (Reforestation Group International) a Costa Rican plantation developer, requested DHForest S.A. to do a review of the stand growth monitoring and financial evaluation of their plantations in Costa Rica. The monitoring and the evaluation is executed by Silvo Consult Srl, and the reports are dated December 2011. DHForest S.A. did similar reviews over the past years.

The productive RGI area included in the study is currently 1.359,5 ha. These productive areas consist of 11 plantations in the Northern zone of Costa Rica. The total effective plantation area consists of 1.316.8 hectares of Teak (*Tectona grandis*) and 42.7 hectares of Acacia (*Acacia mangium*). The incorporation of two new farms augmented the productive Teak area with 100.7 hectares. One can observe this in Table 1 Farm name and size.

Project	Location	Planting	Area	plots	Plot
Monte Verde 1	Corazon de Jesus	1997	58,7	16	5600
Vasconia	Vasconia	1998	21,9	6	2712
Monte Verde 2	Corazon de Jesus	1999	28,4	6	2100
Monte Verde 3	Amparo	2000	55,7	12	5292
Monte Verde 3	Amparo	2001	32,5	6	2646
Monte Verde 4	Arco Iris	2001	84,5	17	7497
Monte Verde 4	Arco Iris	2002	90,5	18	7938
Mairena	Mairena	2002	25,9	5	2205
Cristo Rey	Cristo Rey	2002	199,6	35	15435
El Parque	El Parque	2003	304,6	69	30429
El Parque	El Parque (Acacia)	2006	42,7	4	1764
Monte Verde 4	Arco Iris	2004	11,4	3	1323
Concho	Concho	2005	73,2	14	8400
Carrizal	Carizal	2006	87,0	16	9600
Conchito	Concho	2007	70,4	15	6615
Combate	Combate	2007	172,8	34	14994
Total			1359,5	276	12450
			4,9 ha/plot		0,92%

Table 1 Farm name and size

The Teak was established in the years from 1997 thru 2007. Most farms had initial planting density of 1111 trees/ha (3 m by 3 m), but 1400 and 1540 trees per hectare were used also. The Acacia is planted with a density of 800 trees per hectare.

In total 22 sample plots for Teak and two for Acacia were measured and checked in the field by DHForest, and these measurements do neither show significant deviation nor systematic errors from the measuring data of Silvo Consult. All plots are easily to locate because they are well defined in the field, and come with sufficient and accurate descriptions. The distribution over the area is good.

On the average, the teak trees are eight years and six months old, have an average diameter of 16 cm, which

RGI provided detail maps for the productive areas. These were reviewed, and during field sampling proven trustworthy.



Illustration 1/ Forest Ing. Frank van den Brink, DHForest S.A., is measuring diameter.

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accounts for a little under 1 cm/yr. Height development reached 15 meters, which is 1 meter more than last years measurements.



Illustration 2/ Well identified tree from permanent measuring plot

Thinning reduced the stands from to 541 trees per hectare, which corresponds to an absolute removal of 17 trees per hectare, but due to incorporation of new young area in this valuation overall average tree number per hectare calculates 569. The basal area calculates 11 m²/ha, and with the average of 569 trees per hectare this sums a standing volume of 76 m³/ha (+/- 3%). The current volume increment since last year is 8 m³/ha and 2 m³/ha were thinned; so total production was 10 m³/ha.

The mean annual increment in volume calculates on the average 9 m³/ha/yr.

Thinning operations have its influence on present value of standing plantations, because its value is withdrawn from the plantation with the harvest of the trees, in order to provide growing space to the remaining trees.

During the field visits, it was observed that infrastructure is weak and not passable the whole year round. The maintenance of the stands is good; however, thinning interventions are not in concordance with the stand growth scenarios.

Overall, performance of the stands is according to monitoring reports. Mean annual increment varies from 6 to 11 m³/ha/yr. Growth models for the Teak areas were presented and adjusted accordingly to the executed thinning regime and growth. Total commercial volume for the five models calculated by SilvoConsult is now 180, 179, 169, 170 and 126 m³/ha.; respectively 9, 9, 8.5, 8.5 and 6.3 m³/yr/ha, which seems reasonable for the local site conditions.

Overall weighted production level is 163 m³/ha according to Silvo Consult, which calculates 4.4 m³/ha less than last year. Silvo Consult has not included the youngest stands yet in this overall production level due to the young age. DHF calculates overall weighted production level of 138 m³/ha, this however is included the younger stands. Without the incorporation of these stands the overall average would calculate 158 m³/ha.



Illustration 3/ Dirt roads make access and workability difficult in rainy season

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Illustration 4/ Harvested Teak trees from plantations recently thinned.

Total standing volume reported by Silvo Consult was calculated by DHF to have a statistical deviation of + or - 3% (well within the recommended 10% deviation), however within the various strata the deviation is higher which indicates that higher sampling intensity could be necessary.

Analyses of the monitoring data over the years 2005 - 2011 show consistency and no indications were found to doubt nor the methods nor the measurements. This year's figures show a continuous slight tendency of stagnation in growth, and adequate attention should be paid to determine and react to this tendency. Silvo Consult calculates approximate - 3% overall decline in production.

In order to evaluate the growth projections presented by Silvo Consult, the distribution of current height development was projected on the curves of Vallejos, (this is graphically illustrated in Figure 1). This distribution was then used to determine the growth level distribution over existing production scenarios for Costa Rica.

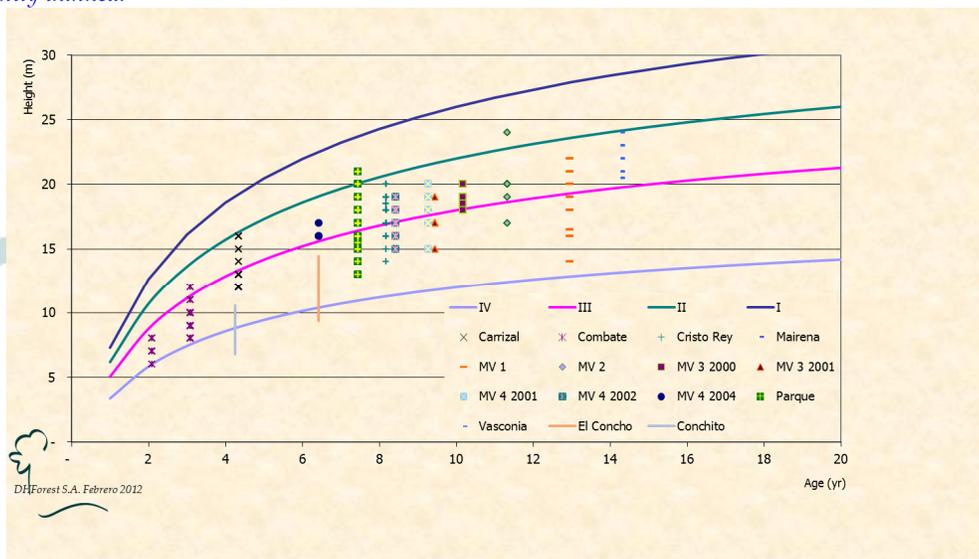


Figure 1/ Height distribution compared to Vallejos

Current distribution shows 1.1% of plantations are in Class II, 49.6% in Class III, 46.6% in Class IV, and 2.6% in Class V.

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The method of determination of the present value of the objects is, compared to last year, not changed. However, the used prices were changed by RGI. Instead of wood prices CIF India to calculate revenues from final harvest, prices are based on standing tree value. The uses of these new prices have an impact on total future and present value.

A conservative 2.3% increment in wood prices was used.

After the decline in prices for Teak and other wood products in 2009, prices are continuing going up. Overall average increment since 1994 calculates 4% annual increment.

A discount rate of 6.3% is used.

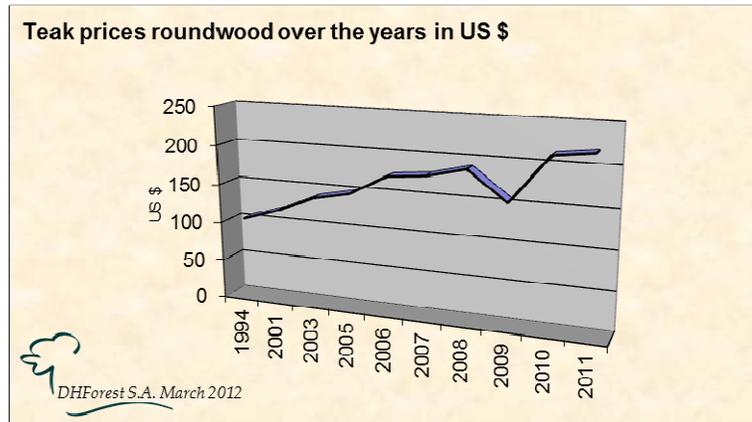


Figure 2/ Price development wood prices Costa Rica.



Illustration 5/ Acacia stand

The Present Value calculated for the different Teak strata vary from \$ 32.972,- per hectare (Strata Teak 2003) to \$ 14.477,- per hectare (Strata Teak 2007). On the average it calculates \$ 22.616,³⁹ per hectare.

For the Acacia the value is \$ 11.946.⁴⁹ per hectare.

Total overall Present Value¹ calculated for the plantations of R.G.I. S.A. is \$ 30.291.156,- or \$ 22.281.²⁶ per productive hectare.

Considering all the before mentioned assumptions on the input data and variables, this Present Value reflects fairly well the actual plantation situation.

¹ The Present Value is based on revenue information currently available and provided by RGI S.A., the tree measurements and assumptions for growth and prognostics. No rights can be derived from these values.