Editorial

New Year Greetings!!

Welcome to the first issue of our newsletter for the year 2014. The opening page starts with a farewell note by Mr. Raymond Keogh, International Coordinator, TEAK21, Ireland, who was involved with many initiatives for the expansion of teak plantations in the tropics. His commitment to teak sector development was evidenced by the FAO paper "The Future of Teak: the High-grade Tropical Hardwood Sector" published in 2009 and his effort to create an organization for Latin American Teak (OLAT); the sole purpose of it was to develop standard grading rules for plantation teak. The TEAKNET community remembers his contribution in most of the teak conferences in different parts of the world and wishes all the best in his future endeavors.

We include here an article on ‘Seed handling and propagation of teak’ which was most sought after by our teak growers and smallholders.

Besides, our usual information on demand of logs and price of domestic teak, there are reports from Myanmar about the heavy backlog of teak and other hardwoods auctioned awaiting shipment in the light of log ban effective from 1 April 2014. After the resumption of Teak auction in Kerala, the quantity of teak logs available for auction in the coming months is notified by the Kerala Forest Department and members can access it through our "Market Watch" in Teaknet website.

There are two New Releases given in the bulletin, one on ‘Teak: New Trends in Silviculture, Commercialization and Wood Utilization’ published by the International Forestry and Agroforestry, Costa Rica, authored by Luis Ugalde, CATIE. This book examines in detail some of the key issues in teak cultivation and management until final harvest and includes world literature on teak. The book serves as a practical reference source for anyone dealing with Teak. Similarly, the other publication ‘SPA Analytistics 1.0’ in CD is a software tool, the outcome of a final research report by M. Sivaram of KFRI on ‘Establishing Seed Production Areas’. The software helps to establish Seed Production Areas (SPA) and guide the teak planters and growers how to cull and eliminate unhealthy trees based on scoring and ranking tree height, girth, crown characteristics and many other tree traits.

We invite your continued support and feedback on issues related to teak and enrich us with articles/news items of interest/research papers etc of non-technical nature for inclusion in the Bulletin.

With warm regards,

P.K. Thulasidas
TEAKNET Coordinator

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Farewell Message by Mr. Raymond Keogh

Since 2008 I have been the Technical Director of Tectona G Capital. It was a new experience in that I was far removed from the field. I found myself walking the corridors of the world’s investment centres with my colleagues. We visited entities like investment banks in New York, family funding offices in Zurich and pension funds in London. Our meetings were designed to extol the virtues of teak as a species and present it as a secure investment opportunity. We hoped to create a dimensional shift in how the species is funded and help to ensure its sustainability. For, without new funding sources, teak quality will continue to deteriorate.

We had a strong case. After all, the world had lost much through its normal investment activities like stocks and shares and equities at the beginning of the current recession. Surely a high-grade tropical hardwood like teak - with its internationally recognised brand name; its excellent timber qualities; its wide range of end-uses; its high demand; its elevated prices in the market place - was a winner.

Read more on page 2
Teak (Tectona grandis L.f.) occupies about 75% of the tropical hardwood plantations yet only 3% of the world’s forest plantations. Teak is widely planted in Kerala both in homesteads as well as in forest plantations. The major plantations species in Kerala is Teak and occupies about 77,000 ha of different stand ages. Teak being a moderately fast-growing tree species in the initial years, it attains about 50 m height. Success of planting programmes depends not only on the site quality but also on the quality of the planting materials. International teak provenance trials have demonstrated the positive effect of provenance or seed source on growth, stem quality and health performance. The use of improved seed (i.e., from seed production areas, seed orchards and plus trees) is most essential in the improvement of growth, stem quality and other characters of the plantation. Through correct selection of seed source, growth and stem quality can be greatly improved. Similarly, quality of seedlings is a major determinant of the success of tree farming. Survival of trees, growth performance, length of rotation and quality of timber are greatly influenced by the quality of seedlings. Hence, use of quality planting stock is essential in determining performance of the plantation. In this context, we attempted to highlight the importance of seed handling and nursery practices for improving the quality and productivity of Teak farming.
Seed collection: Seeds for the production of planting stock are to be collected from phenotypically superior 25 to 35-year-old trees/plantations during the peak maturity period, i.e., during February-March. Fruits are usually collected from the ground. Ground beneath the trees was kept clean before seed collection. For ease of collection, a cover, like tarpaulin, can be spread out on the ground. Shaking the branches manually using a pole fitted with hook facilitates fall of mature fruits on to the clean ground or on the tarpaulin. Generally, seed production in intensively managed Seed Production Areas (SPA)/Seed Orchard is about 200-300 kg ha\(^{-1}\) year\(^{-1}\).

Seed processing: Seed processing aims to obtain clean, pure and high quality seeds which can be easily handled during succeeding process, such as pretreatment, storage and sowing. Remove the bladder like calyx by rubbing seeds in gunny bag or sack and separate it by winnowing. Thereafter, the seeds are size-graded using teak grading machine having a sieve size of 9 mm mesh (Figs. 1 & 2).

Grading improves the average physiological quality of the seed lot by removing sterile and immature seeds, damaged or dead ones. Grading assures a uniform germination and seedling growth. Teak seeds have post-harvest maturity; hence the seeds stored for one or two months helps to improve their germinability.

Rapid viability test: Cutting test is used as the rapid viability test to assess quality of Teak seeds. Colour and conditions of the seeds can be visually examined by a cross cut on the fruit (drupes) (Fig. 3). It helps to examine the number of seeds per fruit and hence to estimate total seed content in the lot. It also helps to distinguish the seed lot having proportion of empty, insect damaged and underdeveloped seeds.

Seed weight: Generally, the number of seeds per kilogram is between 2000-3000. Seed weight depends on the seed size and in the low rain fed regions the size will be lesser than that of moderately/higher rain fed regions. In Kerala, the size of teak seed used for the production of quality planting stock is ≥ 9 mm (diameter) and the average number of seeds varies from 1500 to 1800 per kilogram.

Pre-sowing treatments: Mechanical dormancy of seed is due to the impermeable pericarp (fruit wall/seed coat). Alternate wetting and drying for seven days is one of the pre-treatment used for improving germinability of the seeds. It helps to leach out chemical inhibitors present in the pericarp and also soften it for water imbibitions, which provide favorable environment for seed germination. Soaking the seeds in cow-dung slurry for 24 hours is also a method used for improving seed germination.

Termite-aided treatment is another method experimented in the Kerala Forest Research Institute to overcome mechanical dormancy of teak seed. In this treatment, termites are allowed to consume the pericarp of seeds (Fig. 4), which enhanced seed germination than that of the other treatments.

Generally, the pretreated seeds will have about 25-45% germination. Germination commences from six days after sowing and culminates by 45 days.

Read more on page 4
**Nursery technique:** The selection of nursery site for Teak seedling production should be well drained and free from weeds. Teak seeds are sown in raised nursery beds during April-May. The recommended standard size of nursery bed is 12 m x 1.2 m x 0.3 m (Fig. 5). About 3-5 kg of seeds can be sown in a bed. Germination commences within 6-15 days after sowing. Periodical weeding, fertilizing, watering, pest management can potentially improve the health of seedlings. Damping-off and collar-rot are the important diseases of seedlings in the Teak nursery. Timely application of systemic fungicide (Carboxin, 0.1% strength) can control such diseases. The planting stocks to be get ready for out planting immediately after the onset of monsoon during June-July. If stump is used as planting material, it should be 9 to 12-month-old one. Whereas, if poly-potted/root-trainer seedlings are being used as planting stock, 3 to 4-month-old is the best for planting. Standard size of a stump is 2 to 3 cm shoot length, 15 to 20 cm root length, 1.5 to 2.5 cm collar diameter (thickest portion of the root) (Fig. 6).

Transportation and the planting cost are minimum for stump planting when compared to seedling planting. The food material stored in the stump is utilized directly by the sprouting shoots and boosts their initial growth until the establishment of root system. But the planted seedlings grow by absorbing nutrients from soil through the existing root system. Stump planting must be done immediately after the onset of rains, in order to avail full benefits of them. However, seedlings can be planted at any time if irrigation facilities are available.

By using improved seeds and quality planting stock, growth of teak plantations can be increased up to 25 per cent. Improved seeds can be obtained from Seed Production Areas and Seed Orchards, and also by adopting seed handling techniques explained in the first part of this article. Similarly, the production of quality planting stock is facilitated by scientific management of nursery as described in the succeeding section.

Author: Dr Luis Ugalde Arias

Topics covered in the book include the status and current trends of natural and planted teak forests, the selection of planting sites, propagation and nursery techniques, silviculture and plantation management, harvesting, wood characteristics and processing, financial issues and environmental impacts.

Teak is recognized as one of the most valuable premium wood in the world, grown in plantations outside its natural habitat in most of the tropical countries. Superior planting stock in the form of genetic clones developed for specific environmental conditions; along with modern management techniques have transformed it into a champion producer of high quality wood with a very bright future. Unfortunately, too many plantations still do not take advantage of these greatly improved opportunities. This book seeks to remedy this situation. As a compilation of the world literature on teak, supplemented with the author’s own experience throughout the tropics, it offers a readable, practical reference for anyone dealing with this species.


Software Tool ‘SPA Analytics 1.0’ for Establishing Seed Production Areas

Developed by:

M. Sivaram* & Sujith K. Surendran, Forest Statistics Department, Kerala Forest Research Institute, Peechi, India

In forestry, quality seeds are propagated for large scale planting so that quality timber/wood is produced for the desired end use. The seed production areas are established to produce quality seeds from the best trees. This is achieved by selecting and converting the best plantations into Seed Production Areas (SPAs) identified among several potential candidate plantations. The chosen plantation is converted into SPA by culling the inferior trees from among the trees available in the plantation. The individual trees were scored for the traits such as height, clear bole height, girth at breast-height, straightness and roundness of the stem, health and crown characteristics of the trees following a scoring scheme and ranked. The area of chosen plantation to convert in to SPA may range from a few hectares to large number of hectares having thousands of trees. Therefore, scoring and ranking of trees based on a set of traits is computationally intensive. Especially, if this has to done by the field staff, lot of mistakes may creep in and consume lot of time. In order to set up SPAs, software ‘SPA Analytics’ helps to prepare a list of inferior trees to be culled by ranking the trees based on traits. In this context, computer software tool ‘SPA Analytics’ aids setting up SPAs. For more details visit http://www.teaknet.org/download/Final_SPA_Report.pdf

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Demand for logs in India

Demand for logs in India could be strong this year if the housing market picks up. During 2013, India’s GDP growth stalled at around 5% and inflation almost reached 10%. Against this economic backdrop, growth in the housing market has weakened. Despite the current weakness in the housing market, analysts expect that in first few months of 2014, demand will resume and prices will respond accordingly.

Domestic prices for Myanmar teak processed in India

Export demand for teak products manufactured in India continues to be good but domestic demand for Myanmar teak products is only from selective high net worth clients.

Myanmar Teak

<table>
<thead>
<tr>
<th>Sawnwood (Ex-mill)</th>
<th>INR per cft*</th>
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</thead>
<tbody>
<tr>
<td>Export Grade *F.E.Q.</td>
<td>6000-14000</td>
</tr>
<tr>
<td>Plantation Teak A grade</td>
<td>5000-5500</td>
</tr>
<tr>
<td>Plantation Teak B grade</td>
<td>4000-4250</td>
</tr>
<tr>
<td>Plantation Teak *F.A.S grade</td>
<td>3250-3500</td>
</tr>
</tbody>
</table>

* 1 US$ = 61.48 INR
* 1cft = 0.028 cu.m
* F.E.Q: First European Quality
* F.A.S: First and second grade of sawnwood

Price variations depend mainly on length and cross section.

Report from Myanmar

Myanmar will ban the export of teak and other hardwood logs as of 1 April this year. Log export shipments from Myanmar increased in December however, reports suggest that some 270,000 cu.m of teak logs and 810,000 cu.m of other hardwood logs remain unshipped at various log depots in Myanmar.

The Myanma Timber Enterprise (MTE) which oversees the log export business has recently released information on how it intends to deal with any export logs that remain unshipped on 31 March.

Analysts say it is unlikely that all the remaining logs can be shipped in the three months before the log export ban takes effect on 1 April 2014.

Shipments to date during the 2013-14 financial year are shown below.

<table>
<thead>
<tr>
<th>2013</th>
<th>Teak cu.m</th>
</tr>
</thead>
<tbody>
<tr>
<td>April</td>
<td>29338</td>
</tr>
<tr>
<td>May</td>
<td>49594</td>
</tr>
<tr>
<td>June</td>
<td>22991</td>
</tr>
<tr>
<td>July</td>
<td>28204</td>
</tr>
<tr>
<td>August</td>
<td>30996</td>
</tr>
<tr>
<td>September</td>
<td>25389</td>
</tr>
<tr>
<td>October</td>
<td>54524</td>
</tr>
<tr>
<td>November</td>
<td>37912</td>
</tr>
<tr>
<td>December</td>
<td>47543</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>326491</strong></td>
</tr>
</tbody>
</table>


Editorial Committee

Dr. P.K. Thulasidas, Dr. Mammen Chundamannil, Dr. E. M. Muralidharan and Dr. S. Sandeep

Teaknet Bulletin is a quarterly electronic newsletter of TEAKNET brought out every year through its website. It is intended for circulation among the members of TEAKNET and other stakeholders of global teak sector. The views expressed in the newsletter are those of the authors and do not necessarily reflect the views of the organization. The readers are welcome to express their opinions or pass on information of value to teak growers, traders, researchers or others concerned with teak. However, TEAKNET reserves the right to choose the contributions for publishing and also to make necessary editorial modifications in the articles in consultation with the authors.

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