



## Inside this issue

First Stakeholder Training Session on  
Silviculture in Asrama, 13-18 July  
2025, Togo 01

3<sup>rd</sup> Webinar on Teak Seedlings Innova-  
tions via Tissue Culture 03

Import of high-quality tissue culture  
teak plantlets from Thai Orchids Lab  
Co., Ltd for model teak plantation  
establishment in Vietnam 09

5<sup>th</sup> WTC Registration closes soon! 11

The re-named *ITTO-BMLEH Teak Newsletter* support and facilitates teak and other tropical species networking and information dissemination in the Asia Pacific and West Africa through ITTO member countries and partners, and support sharing lessons of the project through short news release, occasional papers, project related research and development information. The bi-monthly newsletter is released online through TEAKNET webpage [www.teaknet.org](http://www.teaknet.org) and co-hosted by Kasetsart University, Thailand.

For more information,

please contact PK Thulasidas  
([thulasidas.teak@gmail.com](mailto:thulasidas.teak@gmail.com)) or  
Yongyut Trisurat ([fforyyt@ku.ac.th](mailto:fforyyt@ku.ac.th))



## First Stakeholder Training Session on Silviculture in Asrama, Togo

July 13-18, 2025

(ITTO Project PP-A/54-331A)

Report by

Kouami KOKOU, Adzo Dzifa KOKUTSE, Kossi HOUNKPATI, Novinyo Kossi SEGLA.  
University of Lomé, Togo



Group photo of training participants with Mr. Sossou AYIDOTE, the Mayor of Asrama  
at the Opening Ceremony (Photo : Honorine Laodjassondou)

As part of the ITTO-BMLEH project entitled *"Promoting Quality Timber Production in Smallholders and Community-based Teak and Other Valuable Species Plantations in the Tropics"* (PP-A/54-331A), the implementation team of Togo organized its first stakeholder training session from July 13 to 18, 2025, in the municipality of Asrama, located approximately 125 km from Lomé. The location, 'Asrama' was chosen due to the proximity to extensive teak plantations (approx. 1,200 ha), managed by Forest Development and Exploitation Office (ODEF). Speaking at the Opening Ceremony, Mr. Sossou AYIDOTE,

the Mayor of Asrama welcomed this strategic activity, highlighting the natural and forestry assets of his municipality commonly referred to as the "Green municipality of Togo." He emphasized the area's rich ecological heritage, including the Togodo classified forest, the vast ODEF plantations, former industrial oil palm groves, and the gallery forests along the Mono river and the Yoto and Wahala tributaries. These features make Asrama, a strategic location for forestry interventions and an ideal environment for promoting the sustainable forest management.



The training focused on several key topics related to the production of forest seeds and seedlings, as well as reforestation techniques. The modules covered the entire forest seed management process, from seed collection to seedling production. Specific topics included:

- ⇒ selection of seed stands
- ⇒ identification of high-quality mother trees
- ⇒ techniques for seed collection, handling, conditioning, and storage, and
- ⇒ implementation of germination tests.

The training was facilitated by Consultants No. 1, Mr. Assih Hémou and 2, Mr. Ayiga Essè, recruited under the project framework. The training also addressed the distribution of seeds to end-users and initiated discussions on establishing a national traceability system for forest seeds. In addition, participants received training in nursery-based seedling production, vegetative propagation techniques, with particular focus on timber species, *Pterocarpus erinaceus*, and forest plantation methods. Overall, the training significantly enhanced participants' capacities in the sustainable management of forest seeds and reforestation practices, with particular emphasis on native species of high ecological and economic value.



Training session in progress with Consultant 1 (Mr. Assih) (Photo : Kossi Hounkpati)

Several field exercises were organized to enable participants to apply the knowledge acquired during classroom sessions. These include: identification and selection of mother trees, seed collection, nursery preparation, and the planting of seedlings. These practical activities facilitated a deeper

understanding and ownership of silvicultural techniques to be implemented in their respective areas of intervention (see photos below).



(A) Field exercise on seed selection and good seed harvesting practices at ODEF teak plantation in Asrama



(B) *Cedrela odorata* plantation in Asrama (Photo credits: Kossi Hounkpati)

**Outcomes:** The training discussions among stakeholders revealed a strong motivation to professionalize their practices, while also highlighting persistent challenges such as limited access to certified seeds and the lack of effective seed traceability tools in Togo. This promising momentum reflects the stakeholders' commitment and signals the emergence of a lasting collaboration, driven by an active platform where innovative ideas are already taking shape for future training sessions.





Reflections of stakeholders on traceability system for forest seeds in Togo (Photo : Kossi Hounkpati)

## 3<sup>rd</sup> Webinar on Teak Seedlings Innovations via Tissue Culture

The International Tropical Timber Organization (ITTO), in partnership with Federal Ministry of Food, Agriculture, and Regional Identity (BMLEH), Germany, TEAKNET- India and Kasetsart University, Thailand, organised the Third Webinar on the topic: *“Teak Seedlings Innovations via Tissue Culture”* under the on-going second phase of the ITTO-BMLEH teak project titled *“Promoting Quality Timber Production in Smallholders and Community-based Teak and Other Valuable Species Plantations in the Tropics (PP-A /54-331A)”* on Friday, 27 June 2025.



Teak tissue culture is already delivering higher yields and returns on clonal plantations worldwide, but the results largely out of reach for smallholders. This webinar was organised as part of a series of 12 bimonthly webinars planned to provide a collaborative learning platform for stakeholders to exchange up-to-date knowledge and share the challenges in sourcing good quality planting material for quality timber production, certification, legality, and supporting the smallholders' livelihood through providing interim financial incentives for long rotation for sustainable plantation management of teak and other valuable species. The webinar brought together participants from countries in Asia-Pacific, Africa and Latin America to explore the critical role of high-quality teak seedling innovation via tissue culture planting as a viable most effective fast deployment of quality germplasm for both commercial and smallholders for establishing short rotation teak and other plant species. Prof. Yongyut Trisurat, Faculty of Forestry, Kasetsart University, Bangkok, moderated the webinar and the opening remark was delivered by Dr. Nurudeen Iddrisu, Director of Trade and Industry Division of ITTO.

In the Opening remarks, Dr. Nurudeen, unfold the teak legacy in the domain of tropical timber trade and the difficulty of obtaining quality planting material for establishing plantations mainly due to poor germplasm of unknown genetic resource base. Therefore, this webinar on tissue culture technology for mass production of teak and other tropical species is highly relevant to the smallholder farmers as well as large-scale planters for high quality teak production systems and share the outcome and dissemination of knowledge emanating from this webinar in the forthcoming 5<sup>th</sup> World Teak Conference in September this year in India.

The webinar featured two presentations. The first speaker, Dr. Doreen Goh from YSG Bioscape, Sabah, the Malaysian company that has exported cloned tissue culture seedling to more than 25 countries around the world.

## Speaker 1

### Dr. Doreen Goh

Managing Director YSG Bioscape Sdn Bhd Sabah, Malaysia

*"Sustainable Planting Materials Production via Tissue Culture"*

Third Webinar of the ITTO-BMLEH Teak Project  
17<sup>th</sup> June, 2025




## INNOVATIVE TEAK PLANTING MATERIALS VIA TISSUE CULTURE

Titled *"Teak Seedlings Innovations via Tissue Culture"*, Dr. Goh first explained the constraints of tissue culture techniques and emphasize three basic criteria to be met for making it commercially successful. They are: the Effectiveness, Efficiency and Economics that constitute the key to the 'Effectiveness' of any tissue culture technology. In addition, the traditional propagation methods of teak from seed, including limited availability of quality seeds which are season-dependant, unpredictable germination rates, and high variability among individuals in its key properties such as yield, growth rate, stem quality and resistance to biotic and abiotic stresses are pausing problems for mass multiplication.

## Opening Remarks



**Dr. M. Nurudeen IDDRISU**  
Director of Trade and Industry,  
International Tropical Timber  
Organization (ITTO)



### Invitation to Webinar

Teak Seedlings Innovation via Tissue Culture

**Opening:** Dr. M. Nurudeen IDDRISU  
Director of Trade and Industry  
International Tropical Timber Organization (ITTO)  
Moderation: Prof. Yongyut Trisurat  
Kasetsart University, Thailand

This webinar is part of the Bi-monthly webinar Series (Jan 2025 - Jan 2026) under the ITTO-BMLEH project, "Promoting Quality Timber Production in Sustainable and Community-based Teak and Other Valuable Species Plantations in the Forest of Asia (PRA)".

**Date:** Friday, 27 June 2025  
**Time:** 3:00 PM for Thailand, Cambodia, Lao PDR, Viet Nam and Indonesia, Myanmar 2:30 PM, India 1:30 PM, Japan 5:00 PM, China & Japan 9:50 AM (GMT)


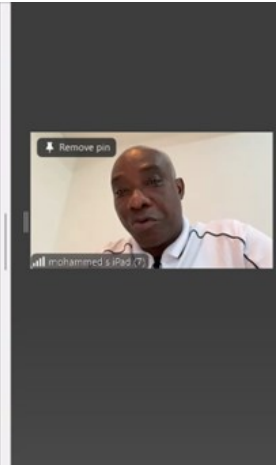
**Zoom Meeting ID:** 820 285 4622  
**Passcode:** 568494

**Programme (one hour)**

**Presentations:**  
"Sustainable Planting Materials Production via Tissue Culture"  
Dr. Doreen Goh  
Managing Director  
YSG Bioscape Sdn Bhd Sabah, Malaysia

**"Good Quality Teak Tissue Culture Seedling"**  
Dr. Phengkei Looi  
CEO of the United Ltd. A private high-tech seedling company, Thailand

**QA**



**Effectiveness**- the ability to propagate a wide range of genotypes within the same species;  
**Efficiency**- the ability to produce a large number of easily established plants  
**Economic**- the ability to compete in price with comparable planting stock.

**Effectiveness interacts with efficiency = Economics of process**

#### LIMITATIONS FROM PROPAGATION BY SEEDS OF TEAK

Traditionally used for propagation of plants  
 Insufficient availability, season-dependent;  
 Highly unpredictable and potentially low germination rates;  
 High variability among individuals, even when genetically related, affecting traits of major economical importance such as yield, growth, quality, resistance to biotic and abiotic stresses...



In contrast, vegetative propagation, or cloning, in a laboratory can produce an unlimited number of identical plants (clones) using material from a single superior mother tree that has been selected for its particular outstanding quantitative and qualitative characteristics (traits).

Dr. Goh said, her company, a subsidiary of the Sabah Foundation, first collaborated and worked with French agricultural research organization, CIRAD, Montpellier, to develop teak planting materials derived from eight specimen trees sourced from the Solomon Islands. The results of mass multiplication of any genotypes (clones) shows the superiority of YSG clones better in growth performance than seedlings in terms of yield and wood quality.

During the two decades of research and development, the company refined the phenotypic selection process by the DNA and wood analysis of clones, now offers more than 50 genotypes (clones) grown in two progeny/provenance trial plots in Sabah. The survival rates surpass more than 90 percent. The cloned planting materials have also been used to establish teak plantations in Brazil and Cambodia.

Data showed that the clonal-derived trees were producing higher yields than their seed-derived equivalents, Dr. Goh said. The YSG clones are now deployed in more than 25 countries in four continents around the world.

#### In contrast, Vegetative Propagation of teak

- allows multiplication of unlimited individuals (clones) that are identical in every aspects to the selected original ortet (True-to-type);
- can be carried out regardless of the seed production capacity of the individuals (whether too young or due to unsuitable environmental conditions);
- is based on selection **quantitative** - such as growth and yield, and **qualitative** - bole shape, flute and forle less, minimal lateral branches, wood characters.

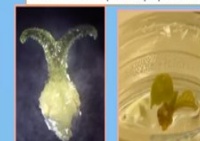


[8 genotypes originating from Solomon Island that display outstanding traits were selected]

#### Micro-cutting at the lab



#### From meristem (100-150µm) cultures



#### Macro-cutting at the nursery

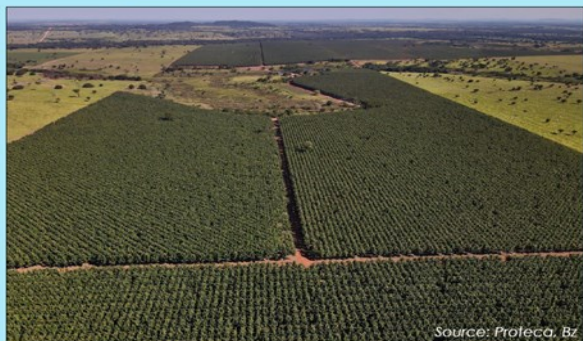


#### Outcomes from more than 2 decades of research (collaboration between the Sabah Foundation Group and CIRAD) have led to :-

1. Optimal protocol developed  
 - Single culture medium, high multiplication rate, simple and cost-efficient
2. Possibility of introducing and mass multiplying any genotypes (clones) regardless of ortet age, and selected based on actual traits – quantitative and qualitative
3. Phenotypic selection further refined by DNA and Wood analyses of clones; establish that timber from plantation not inferior to naturally grown teak of the same age
4. Results from field trials in numerous countries verified that YSG clones are consistently better in growth performance than seedlings or clones from local sources (*refer to our numerous publications*)
5. Allows the delivery of plants to overseas markets  
 - Benefit of a phytosanitary certification overcoming quarantine constraints



## For large-scale plantation establishments



Source: Proteca, Bz



Source: Teak Farm I

- Teak clonal plantations are expected to produce higher yield of greater quality timber than seed-derived ones to get the best and earliest returns on investment.
- Crucial for overcoming the tremendous deficit in supply and to meet ever increasing international demands of superior teak wood that can no longer be harvested from natural teak forests.
- Intensification of crop productivity also spurred by the increasing demographic pressure on land tenure  
(Ref. Monteuiis and Goh, 2018)

Due to faster growth rates of cloned teak plantations in Brazil, they were considering a rotation period of 15–18 years rather than 20–25 years - a significantly faster return on their investment. In Cambodia, meanwhile, growers are looking at just 6–7 years for final harvest of their YSG cloned teak and using innovative wood preservation and other technologies to improve the quality of the resulting timber.

In addition to propagating clonal teak plantations, the YSG is

also diversifying teak intercropping systems with rubber (in Ivory Coast), arrowroot (Indonesia) and coffee and banana (French Guiana) as well as border plantings with oil palm (Malaysia) and agro-pastoral systems (Ecuador and Philippines). They are also looking for tissue culture production of other valuable species for commercial plantations like, *Acacia mangium*, Eucalypts etc. In short, the conclusion drawn from the presentation are summarised below.

### LESSONS LEARNT FROM THE TC PROPAGATION OF TEAK CLONES:

1. Through the application of this technology, high production of planting materials with selected and site-adapted qualities- shorter rotation, improved wood quality and yield, and reduced losses, within a limited space is achievable whole year round
2. Propagation of teak clones highly possible based on actual traits (as traits of high economical importance are known to be poorly inherited) rather than more uncertain, speculative and costly approaches .... maximizing higher returns on investments in the shortest delays while ensuring homogenous growth for plantation establishment
3. The propagation technique allows the sustainable production of clonal teak plants for widespread applications ( excellent for carbon-offset projects) as it is also the only way to export sterile live plants without phytosanitary constraints

Creating higher value with Clonal Teak ... Intercropping or mixed land use with commodity cash crops and pastoral farming



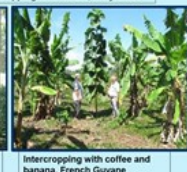
Intercropping with rubber, Ivory Coast



Border planting of Oil Palm plantation with clonal Teak in Sabah



Maranta arundinacea (Arrowroot) planted under clonal teak trees in Garut, Indonesia



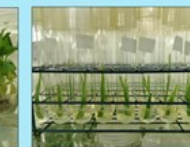
Intercropping with coffee and banana, French Guiana



Agro-pastoral setting, Ecuador

For diversification purpose, YSG is also looking at other species for tissue culture production and commercialization:-

1. Industrial tree plantation species
  - *Acacia mangium* and hybrids, *Eucalyptus pellita*, *peronema canescens*
2. Cash crops
  - Banana and pineapple (local varieties), Vanilla (*V. planifolia*), Dragon fruit, Rice...
3. Ornamentals
  - Orchids (numerous local vars: *Dendrobium*, *Phalaenopsis*, *Cymbidium* etc)





Responding to a point raised during the webinar by ITTO's Director of Trade and Industry, Dr. Goh agreed that plantation teak may represent "a sacrifice in quality" compared to slower-growing teak from natural forests. To another question by Dr. Nurudeen, she responded that the supply of teak from natural forests is in steady decline, "we have no other option but to try to fall back on fast-growing clonal plantation of teak". At the end of the day, we have to talk about the supply and demand, the market, whether the consumer is going to be able to accept lesser quality timber, said Dr. Goh.

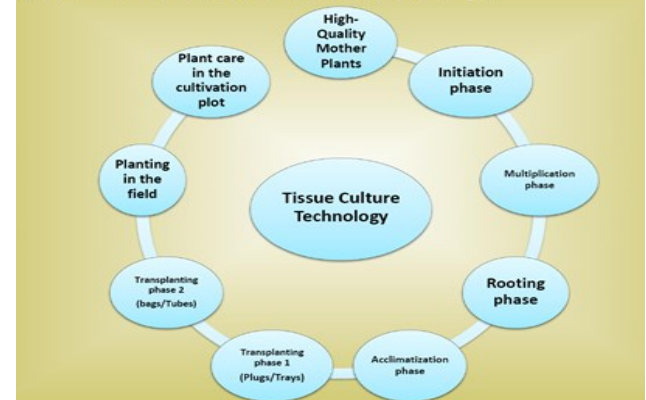


Intervention by Dr. Nurudeen, ITTO

The second expert speaker Dr. Paiboolya Gavinlertvatana, Managing Director of Thai Orchid Labs Co. Ltd. (TOL), a private supplier of teak and rubberwood seedlings based in Thailand, elaborately talked on *"Good Quality Teak Tissue Culture Seedlings"*. The company's 3,000 m<sup>2</sup> facility is a family business enterprise that can produce 20 million plants a year, including fruit and vegetable species, ornamentals and herbs as well as trees and prominent among them is teak tissue culture seedlings.

Dr. Paiboolya delved deeper into the several different tissue culture techniques that can be deployed depending on the goal, including shoot-tip culture, embryo culture, embryogenesis and organogenesis. For commercial viability, any technique must also be scalable, reliable, consistent and profitable – and deliver goods results in the field.

## 2. Processes of Tissue Culture Technology:



## 3. Requirements for a commercial tissue culture technologies

- Elite mother plants & Explants
- Suitable Medium formula...Step I, II, III & IV
- Optimum growing conditions (Temperature, light, etc.)
- Appropriate technique....Shoot Tip culture, Embryo Cultures, Embryogenesis, Organogenesis, etc.
- Good Management
  - Scalable
  - Reliable
  - Consistency
  - Profitable
- Field performance

## Speaker 2

**Dr. Paiboolya Gavinlertvatana**  
MD of Thai Orchid Ltd.  
A private teak/rubberwood seedling company, Thailand

*"Good Quality Teak Tissue Culture Seedling"*



## TEAK (*Tectona grandis*)

### 1. Selection of elite mother trees



>100 Elite  
Mother Trees

To develop improved teak, TOL worked with Thailand's Royal Forestry Department to select good mother trees, some of them specimens of more than 40 metres in height, with only about 1 in 1000 trees examined making it into the gene bank and DNA fingerprint ensures genetic identity. TOL's cloned materials have since been planted in Thailand and other parts of Southeast Asia as well as in Australia, Guatemala, Jamaica and Mozambique. TOL's own 1000 ha teak plantation in Thailand is now about 19 years old.

### Field Performance



### 1. Further selection of specific traits defoliator resistance, wood quality, faster growth.

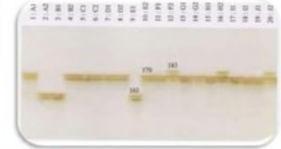
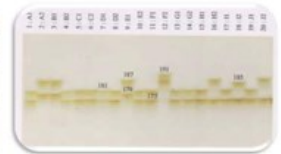


### DNA fingerprint ensures genetic identity

Mother plants



DNA fingerprint (two genes, for various clones)



Do not distribute with permission

Confidential - Draft for discussion only

Copyright Thai Orchids Lab Co. Ltd.

The performance looks very good in terms of stem form, uniformity and growth. To look for further improvements, specific selection of particular traits like defoliator resistance, wood quality and faster growth are being looked into by gene markers.

### 4. Development of natural dye, tea and hair shampoo from leaves of teak.....important of tissue culture materials.



Development of alternative income generating products such as natural dye, hair shampoo from teak leaves highlights the importance of tissue culture materials.

### Summary

Good Quality Teak Tissue Culture Seedlings:

- High Wood-Yields
- High Quality Wood
- High price & Value ⇒ High Return



THAI ORCHIDS LAB CO., LTD.  
is  
Ready & Happy to Serve and

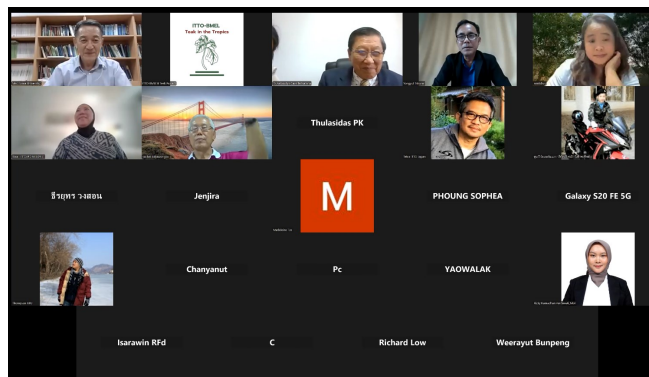




## Conclusion:

Good quality teak tissue culture seedlings offer us high yielding teak timber, quality wood for high price and high return on investment at shorter rotations, said Dr. Paiboolya. Dr. Goh said her company could supply high-quality mother stock to local nurseries who could then adopt more traditional methods to cultivate affordable improved teak planting materials for small farmers, who could then take cuttings of their own, saving the cost. Clonal propagation through tissue culture presents a promising avenue for supply of good quality teak timber at shorter rotations.

Another solution for smallholders is to form cooperatives who could then order cloned plants in sufficient numbers for it to be worthwhile for the producer, Dr. Paiboolya said. Smallholders also have the option of integrating teak into agroforestry systems with cash crops and may qualify for payments from the generation of carbon credits. Both the speakers also addressed concern that teak rotations remain too long for smallholders who need faster returns from their limited landholdings. The webinar was attended over by 52 participants from across the globe. The presentations of the speakers is available in the project website [EVENT – ITTO-BMEL TEAKPROJECT](#)



*Report by*

PK Thulasidas  
Yongyut Trisurat &  
Tetra Yanuariadi

ITTO – BMLEH project team

## Import of high-quality tissue culture teak plantlets from Thai Orchids Lab Co., Ltd for model teak plantation establishment in Vietnam

(ITTO project PP-A/54-331A)

Dang Thinh Trieu

National Coordinator for Vietnam component, Vietnamese Academy of Forest Sciences, Vietnam

In Vietnam, teak (*Tectona grandis*) was first introduced in late 19<sup>th</sup> century by French and has since become one of the most important plantation species in the country. However, as of now, teak plantations cover only about 6,600 hectares, accounting for approximately 0.15% of the total plantation area in Vietnam.

The development of teak plantations in Vietnam faces several major challenges. These include limited capital resources among local growers, the long rotation period of teak, and the lack of genetic improvement in existing teak resources.



Dr. Trieu with 5<sup>th</sup> stage teak plantlet at Northern nursery of VAFS, June 2025

Additionally, the available genetic stock is rather limited, as most seed sources were selected from plantations established between 1952 and 1962, without recorded provenance or systematic selection.

Vietnam joins the ITTO-BMLEH teak project (ITTO project PP-A/54-331A) with the expectation of contributing to the improvement of high-quality timber production from teak and other valuable plantation species. To achieve this goal, Vietnam aims to import superior quality teak in order to diversify the teak genetic resources and to establish the demonstration models of high-quality teak plantations that can serve as a learning site for local plantation growers.

In June 2025, Vietnam has imported 9,000 teak plantlets from Thai Orchids Lab Co., Ltd, including 2,000 and 7,000 tissue-cultured plantlets at 3<sup>rd</sup> and 5<sup>th</sup> stage, respectively. These plantlets are currently being nursed and are scheduled for field planting in August 2025. The trial aims to evaluate their adaptability to different ecological regions and form the basis for future large-scale commercial planting.

Below photos shows the different stages of the imported tissue-culture teak plantlets maintained at the nurseries of the Vietnamese Academy of Forest Science (VAFS) for field planting.



3<sup>rd</sup> stage teak plantlet at the time of import, January 2025



3<sup>rd</sup> stage teak plantlet of 6 months old in June 2025 at Northern nursery of VAFS



5<sup>th</sup> stage teak plantlet at Southern nursery of VAFS, June 2025



*42 days to go !*



INDIA 2025  
Kochi  
17-20 September 2025

## 5<sup>th</sup> World Teak Conference

*'Sustainable Development of the Global Teak Sector –  
Adapting to Future Markets and Environments'*

17-20 September 2025



Grand Hyatt, Kochi, Bolgatty  
Kerala, India

🌐 [www.worldteakconference2025.com](http://www.worldteakconference2025.com)

✉ [infowtc2025@gmail.com](mailto:infowtc2025@gmail.com)

### Editorial Committee

Chief Editor : Dr. PK Thulasidas, International Consultant, India

Associate Editors : Prof. Yongyut Trisurat, Kasetsart University, Bangkok, Thailand  
Dr. Tetra Yanuariadi, ITTO, Yokohama, Japan  
Dr. Hwan-ok MA, Korea University, Korea & University of Forestry and Environmental Science (UFES), Myanmar  
Dr. S. Sandeep, TEAKNET, India

Editorial Board : Dr. Preecha Ongprasert and Dr. Suwan Tangmitcharoen, Royal Forest Department, Thailand  
Mr. Chheang Dany and Mr. Say Sinly, Forestry Administration, Cambodia  
Dr. Tram Lam Dong and Dr. Dang Thinh Trieu, Vietnamese Academy of Forest Science (VAFS), Vietnam  
Dr. Rina Cumie Kristanti, Ministry of Forestry, Indonesia and Prof. Anto Rimbawanto, BRIN, Indonesia  
Director, (International Cooperation), Indian Council of Forestry Research & Education (ICFRE), Dehra Dun and  
Dr. R. Yesodha, ICFRE- Institute of Forest Genetics & Tree Breeding (IFGTB), Coimbatore, India  
Prof. Kokou Kouami and Prof. Kokuste A. Dzifa, University of Lomé, Togo, W. Africa

*ITTO –BMLEH Teak Newsletter* is a bi-monthly electronic newsletter of the Project Team which is intended for circulation among the 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 concerned with teak. However, we reserves the information on the project and publishing through this newsletter for our esteemed readers.

Address all communications to:  
TEAKNET Secretariat  
International Teak Information Network  
Peechi-680 653, Thrissur, Kerala, India  
Tel: +91 487 2690396; Fax: +91 487 2690111  
Email: [secretariat@teaknet.org](mailto:secretariat@teaknet.org)