ITTO-BMLEH
Teak in the Tropics

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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 and co-hosted by Kasetsart University, Thailand.

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First Stakeholder Training Session on Silviculture in Asrama, Togo

July 13-18, 2025

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

Report by

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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 Hèmou 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)*

3rd Webinar on

Teak Seedlings Innovations via Tissue Culture

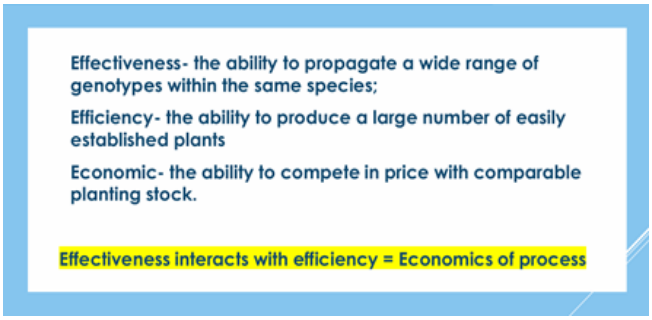
The International Tropical Timber Organization (ITTO), in partnership with Federal Ministry of Food, Agriculture, and Regional Identity (BMLEH), Germany, TEAKNET- India and Kasetsart University, Thailand, organised the Third Webinar on the topic: "*Teak Seedlings Innovations via Tissue Culture*" under 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.

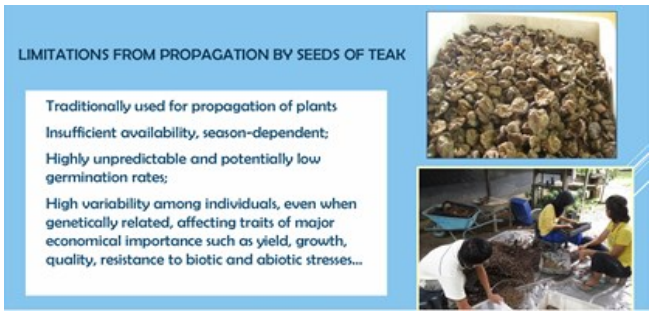
Teak tissue culture is already delivering higher yields and returns on clonal plantations worldwide, but the results largely out of reach for smallholders. This webinar was organised as part of a series of 12 bimonthly webinars planned to provide a collaborative learning platform for stakeholders to 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 5th 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.

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.



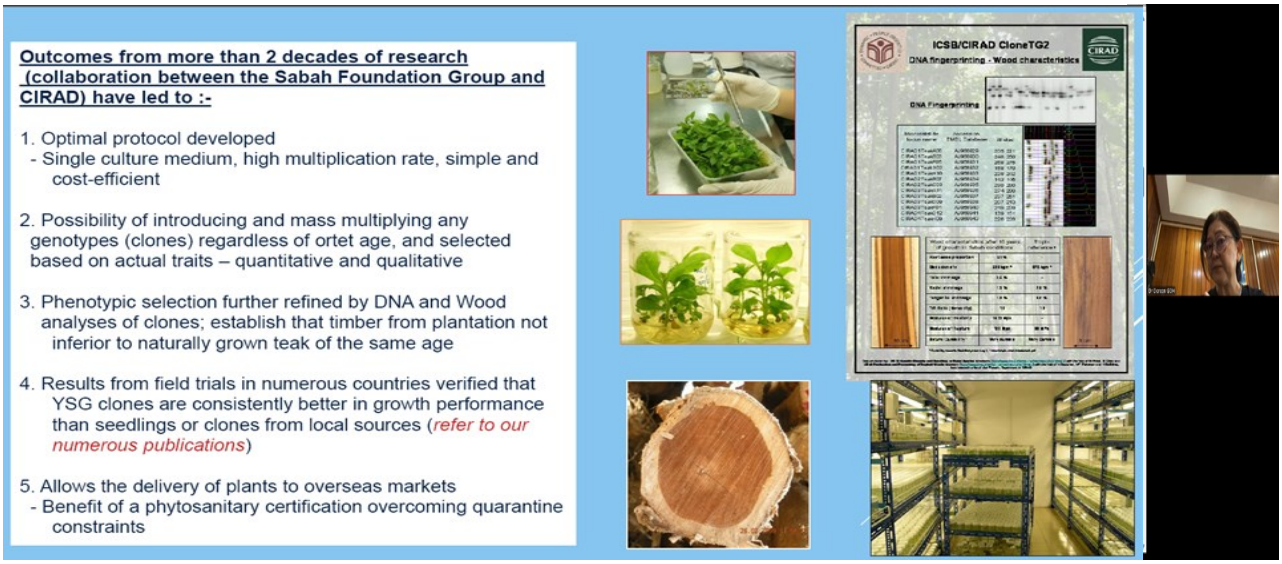


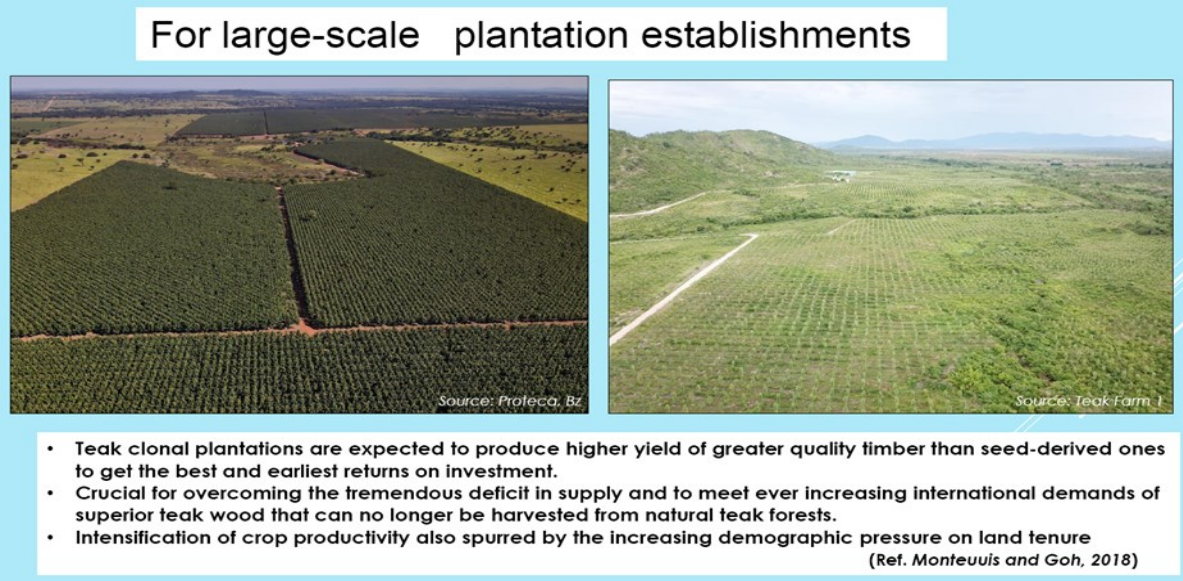
In contrast, vegetative propagation, or cloning, in a laboratory can produce an unlimited number of identical plants (clones) using material from a single superior mother tree that has been selected for its particular outstanding quantitative and qualitative characteristics (traits).

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.

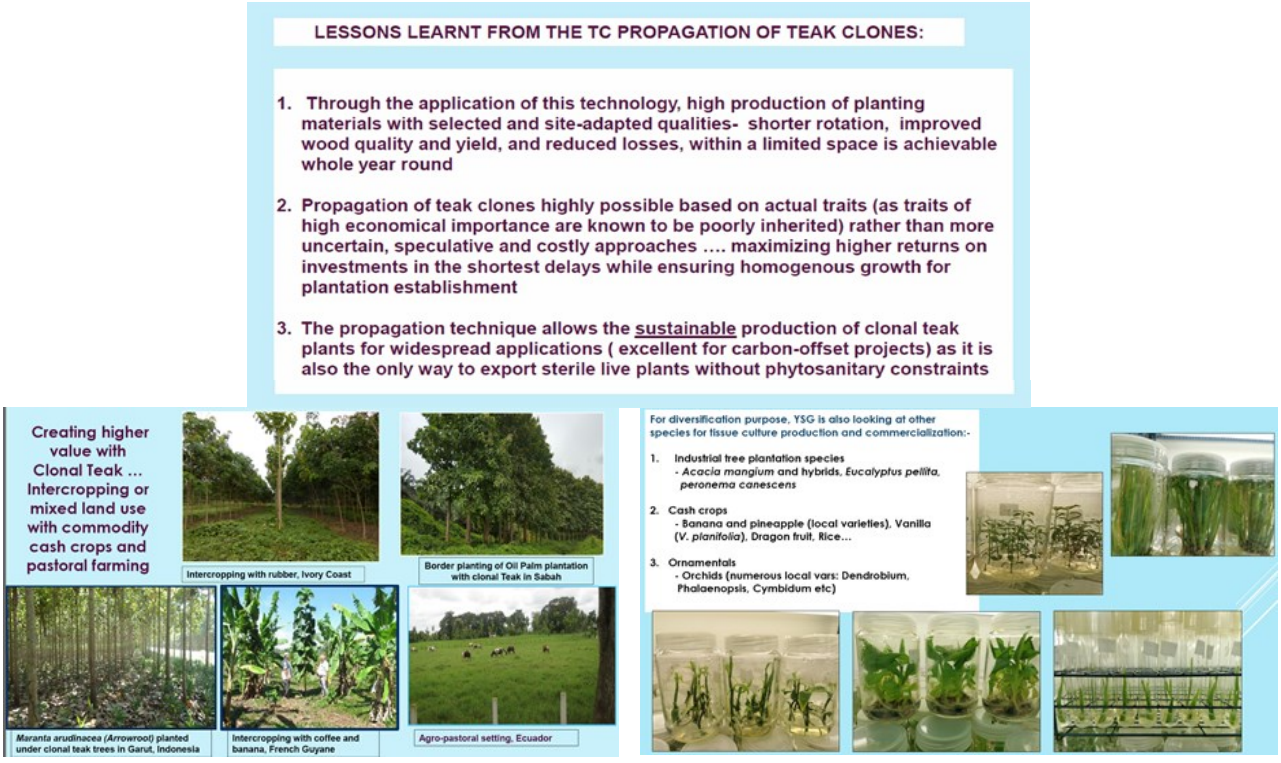
Data showed that the clonal-derived trees were producing higher yields than their seed-derived equivalents, Dr. Goh said. The YSG clones are now deployed in more than 25 countries in four continents around the world.





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.

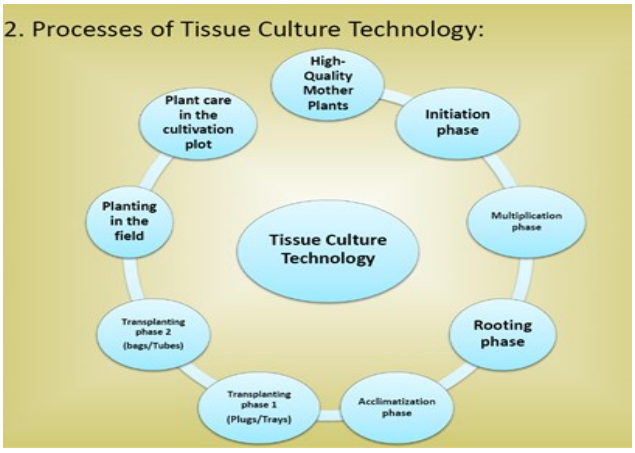


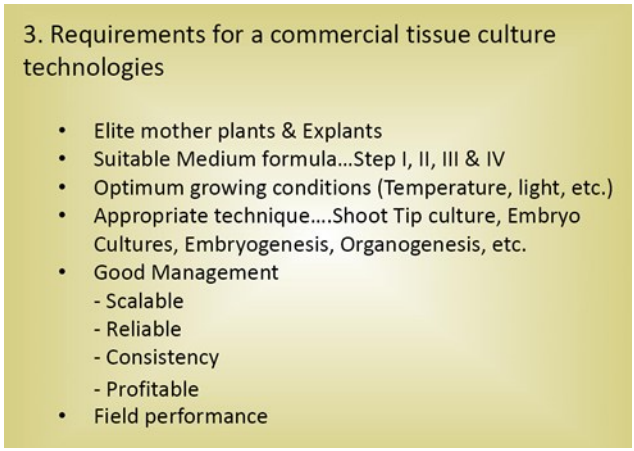
Responding to a point raised during the webinar by ITTO's Director of Trade and Industry, Dr. Goh agreed that plantation teak may represent "a sacrifice in quality" compared to slower-growing teak from natural forests. To another question by Dr. Nurudeen, she responded that the supply of teak from natural 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.

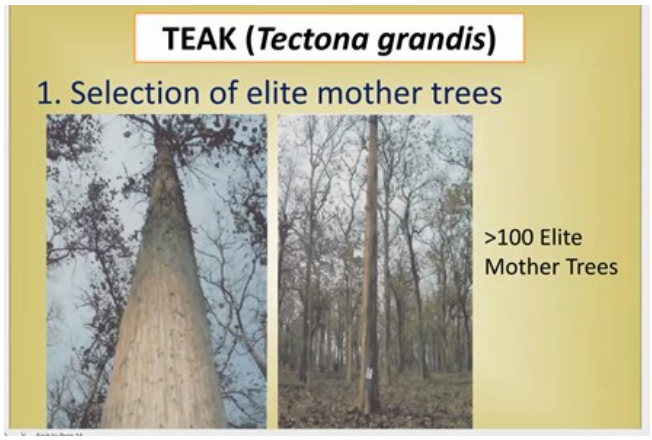
Intervention by Dr. Nurudeen, ITTO

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^2 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.

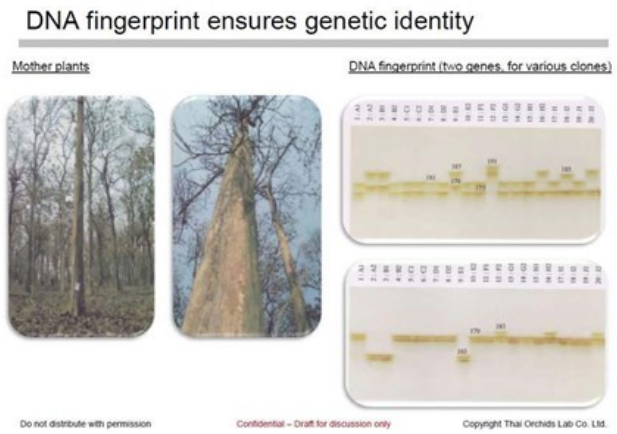
Dr. Paiboolya delved deeper into the several different tissue culture techniques that can be deployed depending on the goal, including shoot-tip culture, embryo culture, embryogenesis and organogenesis. For commercial viability, any technique must also be scalable, reliable, consistent and profitable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





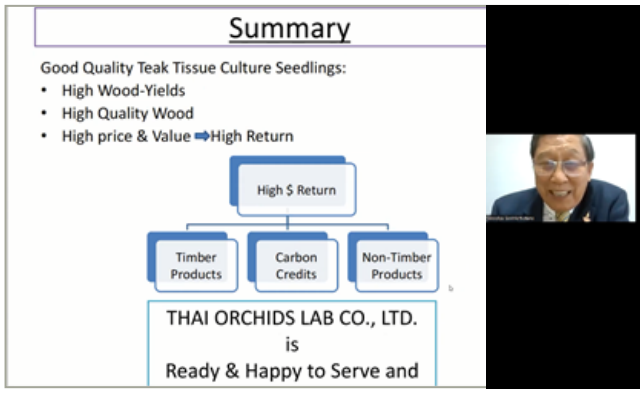


To develop improved teak, TOL worked with Thailand's Royal Forestry Department to select good mother trees, some of them specimens of more than 40 metres in height, with only about 1 in 1000 trees examined making it into the gene bank and DNA fingerprint ensures genetic identity. TOL's cloned materials 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.



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.

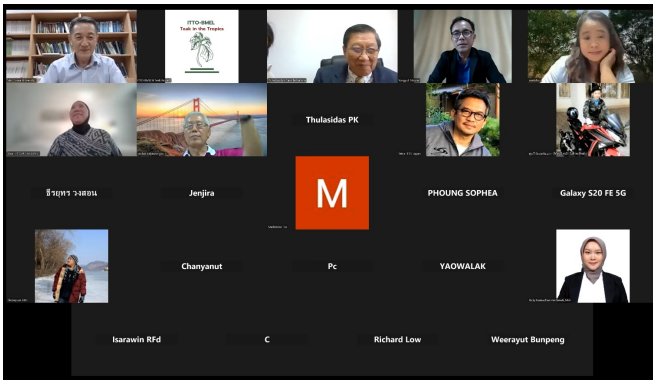
Development of alternative income generating products such as natural dye, hair shampoo from teak leaves highlights the importance of tissue culture materials.



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
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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 19th 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 5th 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 3rd and 5th 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.

3rd stage teak plantlet at the time of import, January 2025

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

5th stage teak plantlet at Southern nursery of VAFS, June 2025

Editorial Committee

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