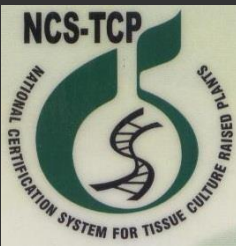


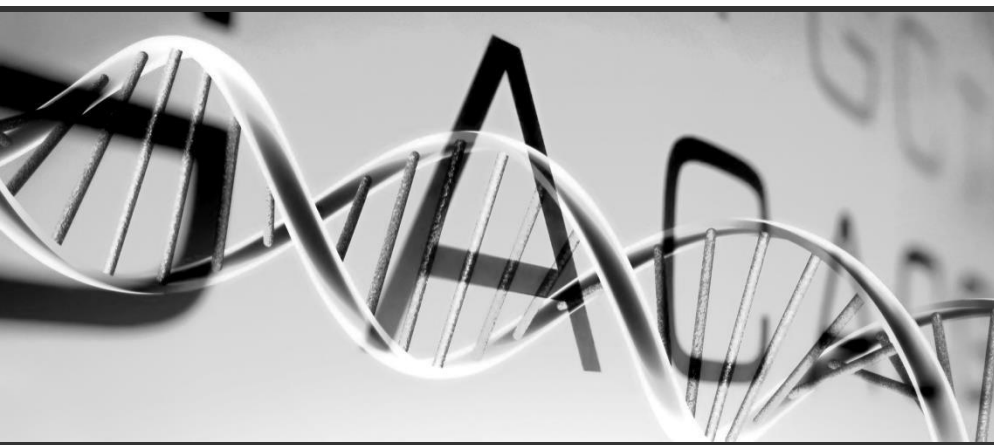
# National AG Bio-tech



National AG Biotech

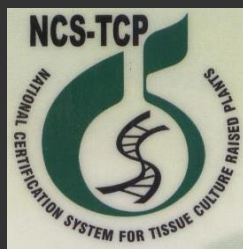
Tissue cultured  
Teak (*Tectona  
grandis*)  
*production and  
Field  
plantation.*





# National **AG** Bio-tech

National AG Bio-tech Laboratories is the realization of the dream of technocrat entrepreneurs to build a biotechnology company in the year 1992 by leveraging their scientific temper and environmental consciousness to deliver technologically proven and qualitatively superior products and services in the areas of Plant Tissue Culture, cloning in plants and Organic Farming.



# Products/ tissue culture

## Fruit crops:

Banana (all cultivars)  
Citrus (Rangapur Lime)  
Fig (*Ficus carica*)  
Dragon Fruit  
Strawberry  
Pine apple  
Pomegranate

## Spices & Medicinal plants:

*Curcuma longa*  
*Gingiber officinalis*  
*Aloe barbadensis*  
*Vanilla planifolia*  
*Stevia rebaudiana*  
*Costus sps*  
Sabah Snake grass

## Forestry plants:

***Tectona grandis***  
*Paulownia sps.*  
*Gmelina arborea*  
*Conocarpus sp*  
*Bambusa vulgaris*  
*Acacia mangium*  
*Albizia odoratissima*

## Oil yielding plants

*Jatropha curcus*  
*Simarouba glauca*  
*Azardirecta indica*  
*Madhuca longifolia*  
*Pongamia pinnata*

## Flower plants:

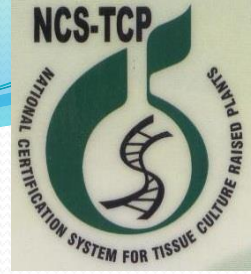
*Anthurium*  
*Carnation*  
*Chrysanthimum*  
*Gerbera*  
*Tropical orchids*

## Foliage plants

*Aglaonema*  
*Cordyline*  
*Diffenbachea*  
*Ficus*  
*Phelodendron*  
*Spathyphyllum*  
*Syngonium*



# Technology for Productivity



## Tissue Culture – Forestry species

Timber yielding trees:

- National AG Bio-tech stands unique in the country, which identifies, develops protocols and produces tissue culture tropical hard wood species, including teak (***Tectona grandis***).
- World's first teak tissue culture plants were raised in India and National AG Bio-tech was part of it.
- National AG Bio-tech is only commercial Lab in the country producing Tissue culture Teak plants since 15 years

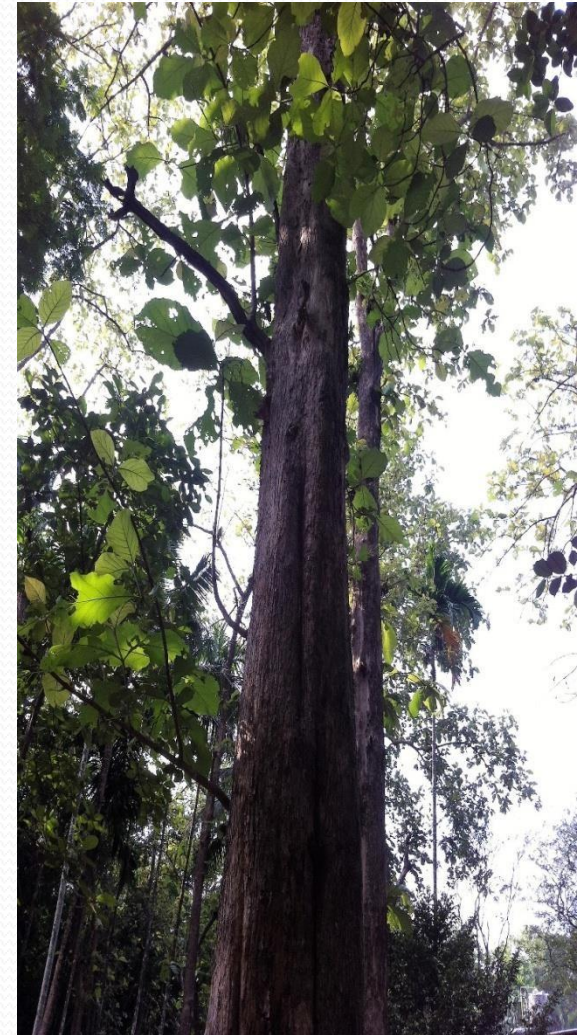




# Teak – *Tectona grandis* Mother plant selection

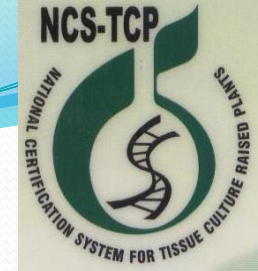


- Teak (*Tectona grandis*), is a genus of Tropical Hard wood trees in the family Verbinaceae.
- They are large trees, growing to 30-40 m tall, deciduous in the dry season
- Teak timber qualities include attractiveness in colour and grain, durability, lightness with strength, ease of seasoning without splitting and cracking, ease of working and carving, resistance to termite, fungus, and weathering.





# Teak Mother plant – Explants/tissues collection



## Teak Tissue culture Process

Tissue culture is the modern Plant Biotechnology that is applied for mass production of superior planting material.

Tissue culture technology be utilized as a means to produce uniform desirable planting material on a large scale in Teak

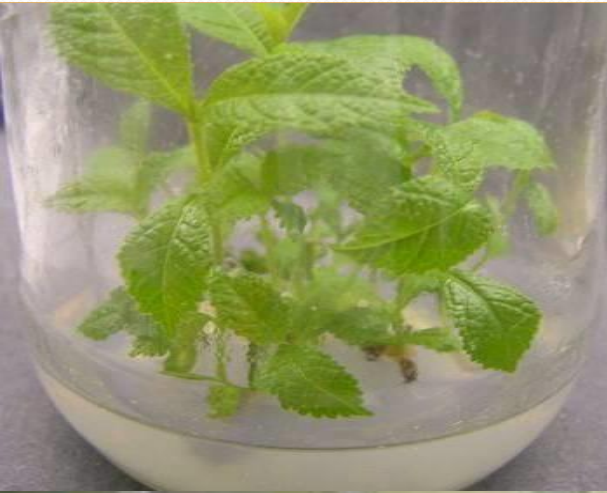
### a. Selection of Mother plants/clones

- National AG Bio-tech is successful in identifying the “Plus Trees” with desirable characters in Teak in all major growing states and developed the tissue culture techniques for mass multiplication with clone marking



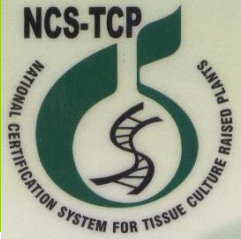
# *In vitro* propagation/tissue culture

Teak Tissues mass multiplication inside the Lab





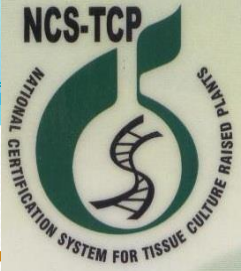
# Plant tissue culture :Inoculation & Incubation Facility in the AGB Laboratory





# Tissue cultured Teak

## Sterile packing of plantlets for Primary hardening/Export





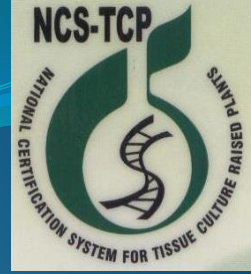
# Tissue cultured Teak in Jiffy pots

## packing of primary hardening Plants for export





# Tissue culture Teak- Laboratory to Green House for hardening



## Acclimatization process

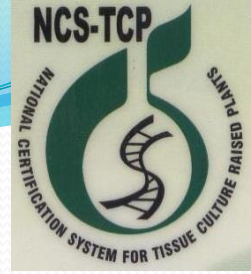




# Tissue cultured Teak Plants Ready for field plantation after hardening



# Advantage – National AG Bio-tech tissue culture Teak



- **Left Image:** Tissue culture plants come with well established root system, grows straight, less branching
- **Right Image:** Stumps made from Seed grown nurseries, less root establishment, grows bushy, mother plant characters not known.
- Tissue culture plants developed from single meristem tissues, isolated from known, established Plus Trees, with all desirable characters
- Hence yield is at expected levels
- Thinning is not required.



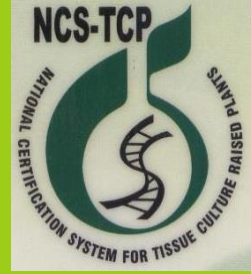


# National AG Bio-tech Tissue cultured Teak in field plantation ( 3 months old)



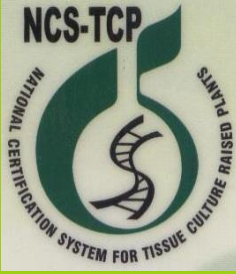


# National AG Bio-tech Tissue cultured Teak in farmers' field (9 months old plantation)



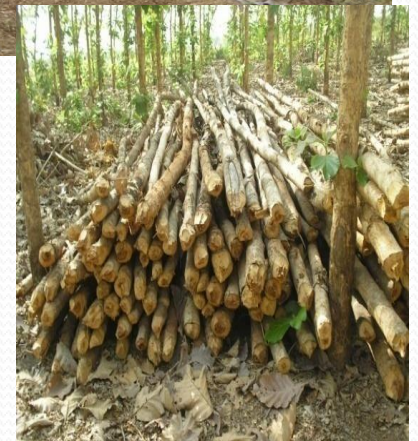
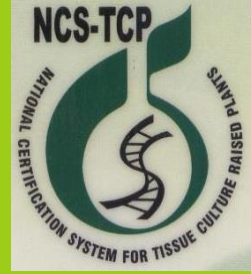


# National AG Bio-tech Tissue cultured Teak in Farmers' field in different regions





# National AG Bio-tech Tissue culture Teak plants growing in the farmers field (6 months to 6 years old)



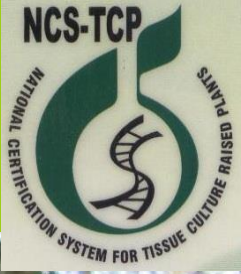


# National AG Bio-tech Tissue cultured Teak in field 2'5" to 2'6" GBH in 6 years old teak plants





# National AG Bio-tech Tissue cultured Teak field 3' GBH in 9 years old teak



21/03/2012 16:26

AGbiotech



# National AG Bio-tech Tissue culture Teak plants ready for harvesting in the farmers field (9 years old)



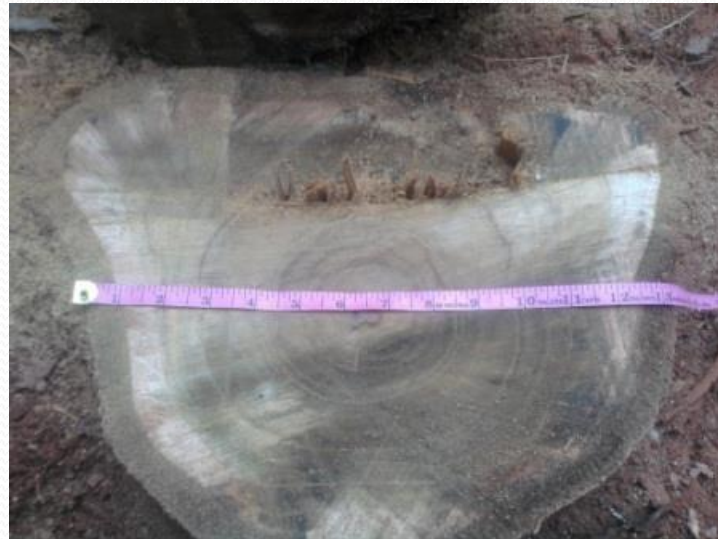


# National AG Bio-tech Tissue culture Teak plants ready for harvesting in the farmers field (9 years old)





# National AG Bio-tech Tissue culture Teak plants harvesting in the farmers field ( 9 years old)



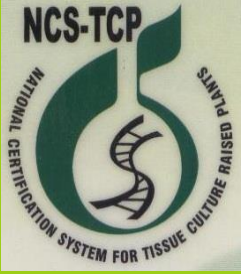


# National AG Bio-tech Tissue culture Teak plants regenerated from the harvested stump (9yrs old)



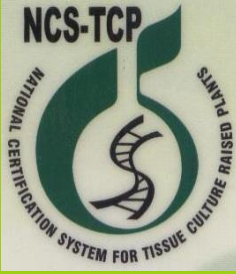


# National AG Bio-tech Tissue culture Teak plants



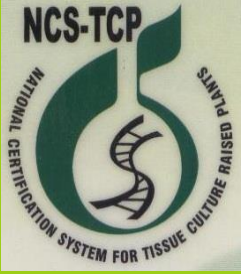


# National AG Bio-tech Tissue culture Teak Tree Trunk with 90% heart wood after harvesting in the farmers' field ( 9 years old)



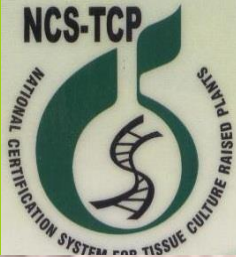


**National AG Bio-tech Tissue culture Teak Tree Trunk  
with 90% heart wood after harvesting in the  
farmers' field ( 9 years old)**



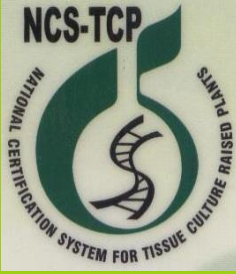


# National AG Bio-tech Tissue culture Teak Trees harvested & Logged in the the farmer' field (9 years old)





# National AG Bio-tech Tissue culture Teak trees kept in Logs after harvesting in the farmers' field ( 9 years old)



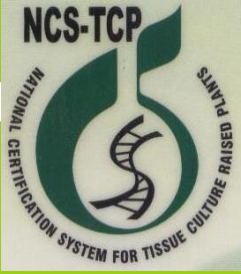


# National AG Bio-tech Tissue culture Teak Tress Loga after harvesting in the farmers' field ( 9 years old)





# National AG Bio-tech Tissue culture Teak plants ready for harvesting in the farmers field (9 years old)

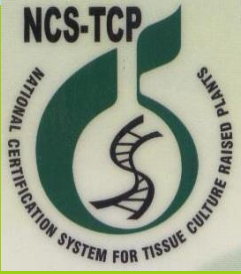




## National AG Bio-tech TEAK Tree logs after harvest with Forest Dept .Permission (9 years Old)

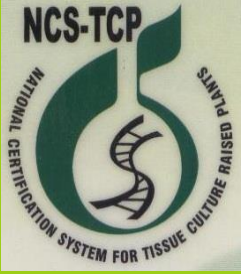


# National AG Bio-tech TEAK Tree logs after harvest with Forest Dept .Permission (9 years Old)





# Teak Tree Trunk with 50" girth after 12 years of plantation

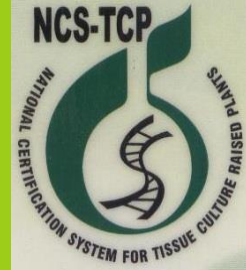


2018-5



# National AG Bio-tech Tissue culture Teak Plantation

## Felling permission by Govt. of AP



### Forest Department

Rc.No.4340/2015-P2.  
Dated: 13.11.2015.

Office of the Divisional Forest Officer  
Kakinada Division, Kakinada

**Proceedings of the Divisional Forest Officer, Kakinada Division, Kakinada.**  
**Present :: Sri M.Srinivasa Rao, S.F.S.,**

Sub: Patta lands – Teak trees existing in patta lands – Sy.nos.271 & 279 of Koduru Village, Rowthulapudi (M), E.G.Dist - Application of Sri Guttamukkala Venugopalaraju, S/o Subrahmanyaraju and Smt Guttamukkala Annapurna, W/o Venugopalaraju, Parupaka (V), Rowthulapudi (M), E.G.Dist - Felling permission – Granted – Regarding.

Ref: 1. Tahsildar, Rowthulapudi Mandal, Ref.L Dis.B/492/2015, dt.09.07.2015.  
2. D.F.O., Kakinada, Rc.no.4340/2015-M, Dt.24.07.2015  
3. F.R.O., Yeleswaram, Rc.no.397/2015,dt.27.10.2015.

\*\*\*\*\*

In pursuance of the instructions issued by the Pri. Chief Conservator of Forests, Andhra Pradesh, Hyderabad in Circular No.1 A/2003 and in the circumstances reported by the Tahsildar, Rowthulapudi Mandal, Forest Range Officer, Yeleswaram vide references 1<sup>st</sup> & 3<sup>rd</sup> cited, the Applicants, Sri Guttamukkala Venugopalaraju, S/o Subrahmanyaraju and Smt.Guttamukkala Annapurna, W/o Venugopalaraju, Parupaka (V), Rowthulapudi (M) is hereby permitted to fell and convert the following Teak trees existing in the patta lands. The work should be completed within (30) days from the date of receipt of this order in Range Office. No further extension of time will be granted. Otherwise, user charges will be re-imposed towards further inspections and extension of time.

Name of the Village	Sy.Nos.	Species	No.of trees permitted for felling	Estimated Quantity	
				Timber in Cmt.	Fuel
Koduru (V), Rowthulapudi (M)	271 & 279	Teak	656	276.583	0
		Total:	656	276.583	0

The applicant has paid user charges for Rs.6560/- vide challan no.0000001342 dt.07.10.2015, of S.T.O., Addateegala.

The above permission is granted subject to the following conditions.

1. After felling and conversion of the above trees, the party is directed to prepare the list for the material obtained both for timber and fuel and furnish the same to the Range Officer in triplicate.
2. After felling the Range Officer will inspect the material at stump site and affix the hammer marks at stump site.
3. The material obtained should be kept at stump site only.
4. The party should not cause any damage to R.F. and other properties.
5. If any irregularities are noticed action will be taken against him as per rules besides canceling the permission granted.
6. The party should produce Security Deposit for Rs.56,000/- (Rupees Fifty six Thousands only) duly pledged in favour of the District Forest Officer, Kakinada, and produce the same to the Range Officer, Kakinada.



# National AG Bio-tech Tissue culture Teak Plantation

## Transport permit of Logs by Govt. of AP



### Government of Andhra Pradesh Forest Department

Rc.No.4340/2015-P2  
Dated :12.08.2016.

Office of the Divisional Forest Officer,  
Kakinada Division, Kakinada.

#### Proceedings of the Divisional Forest Officer, Kakinada Division, Kakinada.

Present: Sri M.Srinivasa Rao, S.F.S.,

Sub: Patta Lands – Transport of Teak produce from Patta lands Sy.Nos. 271 & 279 of Koduru (V) of Rowthulapudi (M) – Application of Sri Guttamukkala Venugopalaraju, S/o.Subrahmanyaraju and Smt.Guttamukkala Annapurna, W/o.Venugopalaraju, Parupaka (V), Rowthulapudi (M), East Godavari District – Revalidation of Form-II permits – Orders issued – Regarding

- Ref:
1. Tahsildar, Rowthulapudi Mandal, Ref.L.Dis.B/492/2015, dt.09.07.2015.
  2. D.F.O., Kakinada, Rc.no.4340/2015- M, Dt:24.07.2015.
  3. F.R.O., Yeleswaram, Rc.no.397/2015,dt.27.10.2015.
  4. D.F.O., Kakinada, Rc.no.4340/2015- P2, Dt:13.11.2015.
  5. F.R.O., Yeleswaram, Rc.no.397/2015,dt.19.12.2015.
  6. D.F.O., Kakinada, Rc.no.4340/2015- P2, Dt:28.03.2016.
  7. F.R.O., Yeleswaram, Rc.no.397/2015,dt.21.07.2016.

\*\*\*\*\*

On request of the applicant and as recommended by the Forest Range Officer, Yeleswaram vide reference 7<sup>th</sup> cited, **(30) Thirty Form-II permits** (by way of Lorries) sanctioned vide reference 6<sup>th</sup> cited are hereby revalidated with a voidah of **(60) Sixty days** for transport of 2501 Teak logs = 221.564 cmt. of teak timber & 150.00 cmt. of teak fuel from the date of receipt of this order in Range Office. The other conditions as stipulated vide reference 6<sup>th</sup> cited will hold good.

Sd/-M.Srinivasa Rao



# National **AG** Bio-tech

**Bachupalli Road, kukutapalli,  
Hyderabad**

**Branch Office : Kadiri Road, Madanapalli,  
Chittoor (Dist), A.P.**

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**Mob no : +91 9491035007**

**Mail id : [reddy@nationalagbiotech.com](mailto:reddy@nationalagbiotech.com)**

**Web site : [www.nationalagbiotech.com](http://www.nationalagbiotech.com)**