TEAK FARMING
CHALLENGES AND
OPPORTUNITIES
by
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• With Billion inhabitants exert heavy toll on

Land for various competitive uses

A case to develop tree resources outside becomes imperative
• Due to exploitive policies - 40% of Forests are open (FSI 2003)

• Huge gap between demand and supply.

• About 2/3rd of countries
  Timber requirement (81.8 million m³ in 2006)
  Is met from agroforests and sources outside forests.
<table>
<thead>
<tr>
<th>Products</th>
<th>Units</th>
<th>1990</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Demand</td>
<td>Short fall</td>
</tr>
<tr>
<td>1. Industrial wood</td>
<td>m cum</td>
<td>28.22</td>
<td>4.8</td>
</tr>
<tr>
<td>2. Round wood</td>
<td>m cum</td>
<td>272.61</td>
<td>1.2</td>
</tr>
<tr>
<td>3. Saw logs and veneer logs</td>
<td>m cum</td>
<td>22.37</td>
<td>6.3</td>
</tr>
<tr>
<td>4. Sawn wood</td>
<td>m cum</td>
<td>24.28</td>
<td>11.6</td>
</tr>
</tbody>
</table>

Source: FAO – (1976-87)
• The 1988 NFP envisages Long term solutions To meet gap.

• Encourages Small and Marginal Farmers To grow wood species required by Wood Industry.
• Trees are important part of Farm Economy in India.
• Today teak is a major species in Homesteads.
• Due to its fast growth and as an emotional insurance crop.
• Is versatile species.
• Holds high price in Timber Market.
• 25 years tree sold Rs.1 lakh (PDK & MDU)
Year of Planting
1997
Natham, Dindigul
Year of Planting 1974, Natham, Dindugal
• Private and Corporate investments and promotion.
  In last two decades lead to raising teak plantations outside.
• FREEEP Study by I.F.T.G.B.
  In 5 Agro climatic zones in T.N. reveals
  It as ideal species
  For short rotation crop of 12-15 yrs.
• Tamil Nadu Cauvery Canal plantation - in strips at espacement of 3 m x 4m- canal water flows for 6 months
• Trees attain height of 22.7 mts with average diameter of 30 - 31 cms.
• Companies floated Tree Equity Schemes based on this data projection - Investment of Rs.1000 per tree.
• Projected Growth 0.050 m3/tree /year.
• Each tree expected to give 1.13 m3 of sawn timber valued at Rs.90,000/- per m3 after twenty years.
TODAY – PCCF says

- TJR – Annual Cut 13000 trees-30 yrs Rotation
- Each trees yields 0.4 cum or 15 cft wood
- Annual revenue Rs.13 crores
- Price per tree Rs.10,000
- Trees develop hollow after 30 years

(Data Year 2007)
• NABARD projections in FDC. Madhya Pradesh.

  118,703 ha raised since 1986 valued at 748 crores

  Average height of 15.6 mts

  Girth 56.9 cms in 20 years age.

• ANTHIYUR IRRIGATED TEAK (7 models) expectation.

• In 10 years farmer expect Rs. 250-Rs.500 per pole.
# 3 Case Studies of Tamil Nadu

<table>
<thead>
<tr>
<th>Name</th>
<th>Sivasankar</th>
<th>Nedunzhian</th>
<th>Anbalagan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>3 as (900 plants per acre)</td>
<td>3 as (3000 trees per acre)</td>
<td>0.24 as (820 plants per acre)</td>
</tr>
<tr>
<td>Rotation</td>
<td>20 yrs</td>
<td>20 yrs</td>
<td>20 yrs</td>
</tr>
<tr>
<td>Expenditure</td>
<td>Rs. 14000 per acre</td>
<td>Rs.1.31 lakh / per</td>
<td>Rs. 26,900</td>
</tr>
<tr>
<td>Yd</td>
<td>4500 cft</td>
<td>Not Known</td>
<td>Not Known</td>
</tr>
<tr>
<td>Net profit</td>
<td>Rs. 29,86,000 per acre (Not aware of income from thinning)</td>
<td>Rs. 13,71,000 (less due to expense) Thinning not done</td>
<td>Rs. 32,00,000 per acre Thinning not done</td>
</tr>
<tr>
<td>S.No.</td>
<td>Name of the trees</td>
<td>Nature of crops</td>
<td>Net Income</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------</td>
<td>-----------------</td>
<td>------------</td>
</tr>
<tr>
<td>1.</td>
<td>Acacia</td>
<td>Reinfed (W)</td>
<td>3,083.75</td>
</tr>
<tr>
<td>2.</td>
<td>Albizia</td>
<td>-do-</td>
<td>4,804.53</td>
</tr>
<tr>
<td>3.</td>
<td>Prosopis</td>
<td>-do-</td>
<td>6,307.20</td>
</tr>
<tr>
<td>4.</td>
<td>Kapok</td>
<td>-do-</td>
<td>2,241.00</td>
</tr>
<tr>
<td>5.</td>
<td>Kapok</td>
<td>Irrigated (W)</td>
<td>8,272.00</td>
</tr>
<tr>
<td>6.</td>
<td>Eucalyptus</td>
<td>-do-</td>
<td>6,689.60</td>
</tr>
<tr>
<td>7.</td>
<td>Casuarina</td>
<td>-do-</td>
<td>23,151.65</td>
</tr>
<tr>
<td>8.</td>
<td>Casuarina</td>
<td>-do- (a)</td>
<td>16,398.08</td>
</tr>
<tr>
<td>9.</td>
<td>TEAK</td>
<td>-do- (W)</td>
<td>14,800.00</td>
</tr>
<tr>
<td>10.</td>
<td>TEAK</td>
<td>-do- (a)</td>
<td>16,673.88</td>
</tr>
</tbody>
</table>

Source: Sekar et al, 1991

Irrigated: Irrigated condition; a: Agricultural crops + Tree crops; W: Wood lot
## Economics of Silviculture of tree crops

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Index</th>
<th>Teak (Rs.)</th>
<th>Silk cotton (Rs.)</th>
<th>Karuvel (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Net income per ha/year</td>
<td>10,716</td>
<td>7,218</td>
<td>2,633</td>
</tr>
<tr>
<td>2.</td>
<td>Net present value</td>
<td>30,543</td>
<td>26,802</td>
<td>6,225</td>
</tr>
<tr>
<td>3.</td>
<td>Benefit cost ratio</td>
<td>3.08</td>
<td>4.10</td>
<td>2.21</td>
</tr>
</tbody>
</table>
## Socio Economic Study

<table>
<thead>
<tr>
<th>Farm size area</th>
<th>No. of farmers</th>
<th>Average farm size (acres)</th>
<th>Av. Teak cultivation area (acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small farmers (&lt;5)</td>
<td>92 (21.6)</td>
<td>4.0</td>
<td>1.0 (24.9)</td>
</tr>
<tr>
<td>Marginal farmers (5-10)</td>
<td>139 (32.8)</td>
<td>8.1</td>
<td>1.4 (16.8)</td>
</tr>
<tr>
<td>Large farmers (&gt;10)</td>
<td>194 (45.6)</td>
<td>21.1</td>
<td>1.8 (8.7)</td>
</tr>
</tbody>
</table>

Total: 425 Farms  
NB: Value within brackets refers to percentage of the total
Opportunities and challenges

Research and Technology support can be considered both

• **As Opportunity and Challenge in**
  • Mass propagation of quality planting material
  • Regeneration and planting techniques
  • Use of bio fertilizer
  • Adoption of IPM system
  • Processing for efficient use and value addition
  • Development of farm-industry interface and relationship
  • Efficient marketing and trade
Challenges And Glaring Issues

- Farmers will opt for tree crops only if he is certain of getting equal or more return than agricultural crops.
- They opt for tree crops as an alternative to usual crops like sugarcane, paddy etc., because these crops a) need more water; b) prone to pest attack and failure and loss (c) more labour intensive.
- Market should be ready to absorb harvest from tree crops.
- A lesser gestation period is favoured by farmers – a longer gestation tree for higher diameter growth and return.
- Farmers raised trees on bunds to act as wind brakes to protect farm land.
• Clonal fast growing trees are preferred.
• Teak trees are subject to hacking and theft by local people.
• Farmers knowledge of Silviculture and Silvicultural operations limited and lot of effort required to
  • Create awareness
  • Acceptability
  • And adoption of proper Silvicultural practice.
• Farmers knowledge of marketing and the economics of tree crops are nil or limited.
• Non availability of ready and standardized models of agro forestry.
• Non availability of quality seedlings readily in proximity.
• Legal impediments and the constraints in felling, transportation, marketing of produce.
• Efforts to draw farmers from conservative and non-risk attitude towards bold tree cultivation enterprise.
• **Forestry credit.** Bankers view is that Foresters are not really in touch with the banking sector for promoting credit. This needs redressal and it is necessary that the Foresters participate in banking related meetings and upgrade the bankers knowledge on the opportunities in this sector.
<table>
<thead>
<tr>
<th>Year</th>
<th>Number of trees (Million)</th>
<th>Tree cover (sq/ km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>1065</td>
<td>35781</td>
</tr>
<tr>
<td>1990</td>
<td>3380</td>
<td>113527</td>
</tr>
<tr>
<td>2000</td>
<td>4246</td>
<td>142641</td>
</tr>
</tbody>
</table>
Tree cover outside forests

Years

Tree cover 000 sq/km
CDM AND AGRO FORESTS

• Untapped opportunity and immense Scope for Agro forestry in future.
• Trees outside forests supply 48% of 64 million m3 of timber consumed annually (Rai and Chakrabartthi, 2001).
• IPCC 2000 - Agro forestry has potential to sequester 2 to 5 tonnes of carbon / ha / year.
• Whereas Rehabilitation and Reforestation can sequester only 0.25 to 0.8 tc ha\(^{-1}\) yr\(^{-1}\).
• Carbon credit can be earned in the range of Rs.5000 to 10,000 per ha per year. (Ravindranath, 2006).
• Teak plantation has a growth rate of 10 tonnes of carbon in woody biomass / ha
• And to this add 2 tonnes into soil per ha per year.
• Total of 12 tc is fixed per ha per year which is equal to 44CER /ha/year.
• At a price of US $ per CER, this can fetch approximately Rs.10,000 /ha/year.
APPROPRIATE TECHNOLOGY

- C R Ranganathan Helical Drrog Experience
- TN MTP Experience
- Canal Bund – Work
- Farmers Irrigated Teak & Bund Plantation
- Drip Irrigation & Precision Teak farming
- Clonal Technology
<table>
<thead>
<tr>
<th>Farmers Willingness and Interest – Acceptance</th>
<th>Easy availability of planting material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galloping favourable Economy &amp; Markets</td>
<td>Appropriate &amp; Up gradation of technology</td>
</tr>
<tr>
<td>National Mood &amp; Conducive Scenario</td>
<td>Aggressive Extension work</td>
</tr>
<tr>
<td></td>
<td>Education And Winning over Banking Community</td>
</tr>
<tr>
<td></td>
<td>Removal of impediments for felling and transport</td>
</tr>
</tbody>
</table>
CONCLUSION

FUTURE OF TEAK FARMING

Depends on

1. Credible Investment
2. Informed Farmers
3. Supportive Technology and
4. Great opportunities for timber growing in liberalised globalised market economy – India GDP @ 9%. 