

Full Length Research Paper

# Constraints encountered by teak growers in adoption of teak cultivation practices

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The study investigates the constraints faced by the teak growers in adoption of teak cultivation practices. The findings of the study revealed that the constraints faced by majority of the teak growers in adoption of teak plantation were namely high prices of fertilizers and plant protection chemicals, non-availability of loan and skilled labour for planting, difficulty in getting information about teak plantation and permission to fell teak plantation. So as to overcome these constraints, the teak growers suggested for provision of loan and subsidies, keeping the prices of inputs like stumps, fertilizers and insecticides reasonable and withdrawing the compulsion for prior permission to plant and fell teak trees on teak growers field.

**Key words:** Constraints, teak growers, adoption.

## INTRODUCTION

Teak (*Tectona grandis* L.) belongs to the family Verbenaceae, The names Tectona and teak have been derived from the Portugese name teca, a derivative of Greek word tekon, "a carpenter", Grandis, in Latin means "large" (Cowen, 1965).

Teak grows well in deep, well drained alluvial soil (Kulkarni, 1951; Puri, 1951). Hard lateritic soil and clays soil are unsuitable for the growth of teak. The optimum soil pH where teak is cultivated or grows naturally varies from 6.5 – 8.0 (Kulkarni, 1951). High clayey soil, water logged and low lime content soils are unsuitable. Calcium and phosphorous content in the soil are essential for optimum growth of teak.

Commercially three distinct types of teak have been recognized-forest grown, forest plantation grown and orchard teak. In teak orchard higher growth rate is achieved due to better aeration and irrigation during non rainy season, timely fertilizer application and protection from litter burning and fire damage (Reddy, 1995). Since trees once established do not respond significantly to

irrigation and fertilizer application (Rawat, 1995) these operations should be carried out only for 3 to 5 years. The best way to ensure this is to go in for intercropping with agricultural components in the beginning and shade loving cash crops later. This will ensure irrigation, hoeing and fertilizer application in earlier years and in turn benefit the tree crop. This has been observed in Teak and Poplar plantation (Dagar et al., 1995; Jha and Gupta, 1991; Lahiri, 1989).

Due to its high timber qualities, market demand, ease of domestication and cultivation, teak plantations have been widely established throughout the tropics since 1850s (FAO, 1957).

One of the most important attributes usually taken into consideration in the selection of species for forestry production is to have moderate to fast growth rate with ability to grow to large size and good form. Also, the species must be free from serious diseases and pests.

Teak is fast growing and more productive than any other tree moreover, the species coppice profusely and the regeneration of plantation, therefore is less expensive.

The technical guidance about improved practice of teak cultivation is provided by the extension workers of Forest

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**Table 1.** Distribution of teak growers according to their constraints faced in adoption of teak cultivation practices for teak cultivation.

S/No.	Constraints	Frequency (n=60)	Percentage	Ranking
<b>A</b>	<b>Credit/Loans</b>			
1	Loan not available in cash	48	80.00	IV
<b>B</b>	<b>Inputs</b>			
1	Cost of fertilizers	55	91.00	I
2	Application of manures and fertilizer increase the cost of cultivation	40	66.66	VII
3	Cost of insecticides and pesticides	45	75.00	VI
4	Insufficient quantity of stumps	22	36.66	IX
5	Non-availability of stumps in time	20	33.33	X
6	Lower quality of stumps	17	28.33	XI
<b>C</b>	<b>Labour</b>			
1	Non-availability of skilled labour for planting	48	80.00	IV
2	Higher wage rates to labour	44	77.33	V
<b>D</b>	<b>Information</b>			
1	Non-availability of information sources	15	25.00	XII
2	Difficulty in getting information about teak plantation	52	86.66	II
<b>E</b>	<b>Technological</b>			
1	Difficult and cumbersome nature of spraying	40	66.66	VII
2	Spraying demands more technological knowledge	10	16.66	XIII
<b>F</b>	<b>Others</b>			
1	Obtain permission from forest department to plant teak trees	35	58.33	VIII
2	Maintain record of teak plantation	22	36.66	IX
3	Obtain permission from forest department for felling of teak trees.	51	85.00	III

Department and a financial help by the Government for raising teak plantation. Even though the cultivation practices of teak are not followed by the farmers due to variety of reasons and difficulties. It was, therefore necessary to identify the constraints faced by teak growers in adoption of teak cultivation practices.

## MATERIALS AND METHODS

The study was conducted in Akola District of Maharashtra State. The list of teak growers who had planted teak on individuals land in Akola District was obtained from the Social Forestry Department. In all, 60 teak growers from all over the district who had planted teak up to 2008 - 2009 were selected. Cent per cent (100%) of respondents were selected for the accuracy of result. All these teak growers were the respondents for the present study. The respondents were interviewed with the help of pretested interview schedule developed for the study.

The constraints in the present study referred to the problems encountered by teak growers in use of teak cultivation practices of teak. The teak growers were asked to elicitate about the constraints faced by them in use of teak cultivation practices of teak. The constraints thus identified by the teak growers were categorized into credit/loans, inputs, labour, technological, informational and

others and the frequency and percentages to each were worked out.

## RESULTS AND DISCUSSION

The responses of teak growers about the constraints faced by them in use of teak cultivation practices of teak were described in Table 1.

It is evident from the data in Table 1 that the major constraints faced by majority of the teak growers (80.00%) under credit/loan were the non-availability of loan in cash. Nimje et al. (1991) also reported the non-availability of loan in cash as a major constraint in adoption of social forestry programme. The teak plantation requires continuous investment for a period of 10 - 15 years without any return. Therefore, it is necessary to provide loans in cash in yearly installments to carry out various cultivation operations.

Regarding inputs, the major constraints faced by higher proportion of teak growers were, namely; (1) cost of fertilizers (80.00%), therefore the government should keep the cost of fertilizer at reasonable price for greater

adoption of teak cultivation. (2) Plant protection chemicals (75.00%), the researcher should, therefore, find out the optimum number of spraying and dustings required for protection of teak from insect pests and diseases. (3) Non-availability of stumps in sufficient quantity (36.66%), that means the required quantity of stumps were not available at nearest place easily. Therefore stumps are made available in sufficient quantity to the people to raise a community forest or raise forest trees along with field crops on individual land.

The application of manures and fertilizers increases the cost of cultivation (66.66%), and the stumps supplied to them were not healthier (28.33%) besides not being made available in time (33.33%). Dove (1988) and Bhole et al. (1991) also reported the non-availability of seedlings in time as the main difficulty in adoption of agro-forestry. It is suggested that the stumps of good quality be made available in time to the prospective growers for planting in their fields.

Under labour constraints, majority of the teak growers reported that skilled labours were not available for planting (80.00%) and their wages were very high (77.33%). It is suggested that the teak growers themselves should get acquainted with the method of planting to overcome this difficulty.

In the category of informational constraints, majority of the teak growers (86.66%) stated that it is cumbersome to get information about teak cultivation. Some of them also reported that they do not have knowledge about information sources for teak plantation (25.00%) and as such do not possess adequate knowledge about teak cultivation. The inadequate knowledge reflects on adoption. More educational efforts are, therefore, required to be taken up by arranging training, providing regular guidance, advice, and arranging demonstration and visits of teak growers to teak plantation. Tewari (1991) also reported that lack of information on the part of teak grower as the major constraints in adoption of social forestry programme. It is, therefore, advisable to prepare the literature on teak cultivation in local language and make it available to the teak growers and extension workers for their use.

So far as the technology is concerned, majority of teak growers opined that spraying on teak trees was not only difficult and cumbersome (66.66%) but it demands more technical knowledge and attention, hence there is a need to find out a spraying method that will be practically feasible to the teak growers. Similar were the observations reported by Dove (1988), Chauhan and Dhyani (1989), Muir and Casey (1989) and Bhole et al. (1991). They also reported that lack of appropriate technologies is a major constraint in adoption of agro-forestry. A feasible method for under taking plant protection, therefore, needs to be devised by the scientists.

In teak cultivation there seemed to be some specific constraints faced by the teak growers. More than 50.00% of the teak growers reported that prior permission from Forest Department was required for planting (58.33%)

and felling of trees (85.00%). Bhole et al. (1991) and Tewari (1991) also reported the uncertainty regarding the permission for felling of trees as one of the major constraints in adoption of agro-forestry. The government should keep reasonable and should lift the ban on obtaining prior permission for planting and felling of trees planted by them on their field. Some of the suggestions given by the teak growers are worth considering, especially the legal provision about permission to plant and fell teak trees need suitable modification so that it will not remain as an obstacle in promotion of teak plantation. Quite a good number of teak growers stated that they were required to maintain record of teak plantation (36.66%). It is worthwhile to simplify the procedure of maintaining record of teak trees and obtaining permission for felling of teak trees.

## Conclusions

The study revealed that majority of the teak growers faced the constraints in adoption of teak cultivation were, namely high prices of fertilizers and plant protection chemicals, non-availability of loan and skilled labour for planting, difficulty in getting information about teak plantation and permission to fell teak plantation. So as to overcome these constraints, the teak growers suggested for provision of loan and subsidies, keeping the prices of inputs like stumps, fertilizers and insecticides reasonable and withdrawing the compulsion for prior permission to plant and fell teak trees on teak growers' field. If this is done, it will help in increasing the adoption of teak cultivation practices by teak growers and would in turn increase the production of teak

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## REFERENCES

- Bhole RS, Sagane MA, Umale PB (1991). Adoption of Agro-forestry by teak growers. Mah. J. Extn. Educ., 10(1): 145-148.
- Chauhan DS, Dhyani SK (1989). Traditional Agro-forestry Practices in North-East Himalayan Region of India. Indian J. Dry Land Agri. Res. Develop., 4(2): 73-81.
- Cowen DV (1965). Flowering trees and shrubs in India. Thacker & Co. Ltd. Fort, Bombay.
- Dagar JC, Singh G, Singh NT, Singh G (1995). Evaluation of crops in agroforestry with teak (*Tectona grandis*), maharukh (*Ailanthus excelsa*) and tamarind (*Tamarindus indica*) on reclaimed salt affected soils. J. Trop. For. Sci., 7(4): 623-634.
- Dove MR (1988). Prospects for Farm Forestry in Pakistan, Part I: Village Land Determinants. Pakistan J. For., 38(1): 12-22.
- FAO (1957). Report on teak growing under exotic conditions. FAO/TSC-57/3, FAO, Rome.

- Jha KK, Chandra G (1991). Intercropping medicinal plants with poplar and their phenology. *Indian For.*, 121(7): 535-544.
- Kulkarni DH (1951). Distribution of teak (*Tectona grandis* L.) on the Northern Slope of the Satpuras with special reference to geology. In: Proc. 8th Silviculturists Conference, Dehra Dun., pp. 254-263.
- Lahiri AK (1989). Taungya based agroforestry trials in West Bengal. *Indian For.*, 115(3): 127-132.
- Muir K, Casey J (1989). Institutional Responsibility for Social Forestry in Africa, Lesson from Zimbabwe. *J. Soc. Develop. Afr.*, 4(2): 27-37.
- Nimje NR, Sinha RR, Kahandhvi DP (1991). Adoption of Social Forestry Programme by the Teak growers. *Maha. J. Extn. Educ.*, 10(I): 99-105.
- Puri GS (1951). Advances in Ecology of teak (*Tectona grandis* L.F.) Proc. 8th Silviculturists Conference, Deheradun. pp. 242-249
- Rawat JK (1995). Value of a 20 year old irrigated teak plantation. *Indian For.*, 121(6): 553-557
- Tewari DN (1991). Social Forestry in India. *Indian For.*, 117(5): 293-308.