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Capacity building of Nilgiris tribal women on value addition in non-wood forest products (NWFPs)

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Abstract
Non-Wood Forest Products (NWFPs) are an integral part of development and survival of people living in and around forests. The potential economic value of NWFPs either in terms of utilization or their market value is often underestimated or unknown. A study was undertaken in the Nilgiris tribal women. The study mainly focused on imparting training to the tribal women on value addition technologies in NWFPs *viz.* Shikkakai, (*Acacia concinna*), Amla (*Phyllanthus emblica*), Tamarind (*Tamarindus indica*), Tamarind (*Tamarindus indica*), Echam leaves (*Phoenix loureirii*), Honey (*Apisdorsata),* Soapnuts (*Sapinduserginatus*), Bee wax, Jamun (*Syzygium cumini*) and Kadukkai (*Terminalia chebula*). The adoption level of the tribal women were assessed using percentage analysis.

Keywords: NWFP, tribal women, Nilgiris, value addition

Introduction
Forest plays an important role in the human society, Human culture, economy, recreation and ethics always move up around the forest. The degree of association with the forest builds many socio-economic levels in human society. Of them, most important one is forest dwellers who are known as 'tribe', 'Scheduled tribe' (as constitutional category) or indigenous people. The Tribal have a close relationship with forests. Forests have greatly influenced their customs, religious practices, social fabric and folklore. Many of them have been dependent on forests, partially for their food, medicinal herbs, and material to build their houses, fuel for cooking as well as lighting and warmth, and fodder for their cattle. At times of food shortages in particular, they depend greatly on the forests for their sustenance. Even in the normal times, the roots, tubers, fruits and flowers collected from forests substantially supplement tribal diet. They enjoy various privileges in respect of cultivation, grazing, and collection of fuel wood, collection of Non-Wood Forest Products (NWFPs), hunting, fishing, etc., in various forests. With this context, the research aimed to provide technological interventions by imparting training to the tribal women of the Nilgiris district on value addition in Non Timber Forest Products (NWFPs). In this article a brief discussion is given on the training and adoption level of the Nilgiris tribal women on value addition in Non Wood Forest Products (NWFPs).

Materials and Methods
Tamil Nadu is rich forest resources and it plays vital role in NWFPs contribution. In Tamil Nadu, Nilgiris, Vellore, Coimbatore, Erode, Salem, Tiruvanamalai and Namakkal are rich in forest resources. But, more involvement of tribal people in non wood forest product (NWFPs) activities is reported in Coimbatore, Erode and Nilgiris Districts. In this article, the Nilgiris district is selected for the study. The major tribes in the Nilgiris district are Todas, Kotas, Kurumbas and the Irulas. Other tribes found in the region are the Paniyas and the Kattunaickens. The Nilgiris district consists of 5 taluks. Out of which, two blocks were selected from each taluk for the study. One revenue village was selected from each block. Two Self Help
Groups from each taluk were selected thus comprising 250 tribal women as respondents for the study. The selection of respondents are given in detail in Table 1.

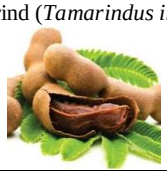
Table 1: Selection of Taluk, Block/ Forest Range in Nilgiris Districts n=250

S. No	District	Taluk	Selected Block	No. of beneficiaries/trainings/ demonstrations	Total no. of trainings/ demonstrations	Total. no. of beneficiaries
1	Nilgiris	Kotagiri	2	1Self Help Groups/ block (25 members/ group)	10	250
		Coonoor	2			
		Kunda	2			
		Ooty	2			
		Gudalur	2			

Results and Discussion

The Nilgiris tribal women were given training on value addition technologies in Shikkakai, *(Acacia concinna)*, Amla (*Phyllanthus emblica*), Tamarind (*Tamarindus indica),* Tamarind (*Tamarindus indica*), Echam leaves (*Phoenix loureirii),* Honey (*Apisdorsata),* Soap nuts (*Sapinduserginatus*), Bee wax, Jamun (*Syzygium cumini*) and Kadukkai (*Terminalia chebula).* The details pertaining to the number of trainings attended and the adoption level of the trainees are given in Table 2.

Table 2: Training and adoption level in the Nilgiris district (n-250)

S. No.	NWFPs	Technologies	Training attended		Adoption level	
			No.	%	No.	%
1.	Shikkakai *(Acacia concinna)* 	Dry fruits should be collected based on the metallic sound of fruits	250	100	150	60.00
		Using gunny bags for collecting dry fruits.	250	100	150	60.00
		Demonstration on powder making	250	100	100	40.00
2.	Amla (*Phyllanthus emblica)* 	The berries should be harvested based on the size and colour	250	100	200	80.00
		Gunny bags and hygienic polythene bags to collect berries	250	100	20080,.00	80.00
		Demonstration on preparation of jam, candy, pickles and squash making	250	100	150	60.00
3.	Tamarind (*Tamarindus indica)* 	Fruits should harvested based on ripening, uniformity in size and colour	250	100	250	100.00
		Periodical harvesting should be done based physiological maturity of the fruits for getting the equal yield in all harvest	250	100	220	80.00
		Alternate branch harvesting should be done to get the yield -sustainable harvesting	250	100	230	92.00
		Demonstration on preparation of tamarind rice mix	250	100	160	64.00
4.	Echam leaves (*Phoenix loureirii*) 	Plot and rotational harvesting should be followed.	250	100	220	80.00
		Organic manures like vermi-compost and bio-fungicides should be applied in the first plot for rejunvation to get leaves and grass around the year.	250	100	- -	-
5	Honey (*Apisdorsata)* 	Collecting honey without mixing pollen and bee debris leads to high keeping quality	250	100	220	88.00
		After collecting, heating is to be made to kill yeast cells to get clean honey	250	100	220	88.00
6	Soap nuts (*Sapindus emarginatus*) 	Gunny bags maybe used for collecting dry fruits.	250	100	150	100.00
		Dry fruits should be collected based on the metallic sound of fruits	250	100	225	90.00
7	Bee wax 	Preparation of wax and value addition of soap, lip balm and candle by using honey wax	250	100	100	40.00
8	Jamun (*Syzygium cumini*) 	Collection and storage	250	100	205	82.00
		Demonstration on candy making, bar and squash making	250	100	120	48.00
9	Kadukkai (*Terminalia chebula*) 	Collection and storage	250	100	150	60.00
		Demonstration on powder making	250	100	80	32.00

Training and adoption level in the Nilgiris district

It could be concluded that, cent per cent of the tribal women had attended the training programme. Moreover, cent per cent of the respondents had adopted the technology of harvesting the fruits based on ripening, uniformity in size and colour followed by alternate branch harvesting to get the yield (92.00%) with respect to Tamarind.

Crop wise training and adoption level of the tribal women

The crop wise training and adoption level has been discussed below.

1. **Shikkakai:** From the table it could be inferred that, cent per cent of the tribal women had attended the training programme which was a welcoming sign. Moreover, 60.00 per cent of the tribal women had adopted the collection of dry fruits based on the metallic sound of the fruits followed by collection of dry fruits using gunny bags for (60.00%).
2. **Amla:** With respect to Amla, cent per cent of the tribal women had attended the training programme. Moreover, 80.00 per cent of the tribal women had adopted the usage of gunny bags and hygienic polythene bags to collect berries followed by harvesting fruits based on size and colour (80.00%).
3. **Tamarind:** In tamarind, cent per cent of the tribal women had attended the training programme. Further, cent per cent of the tribal women had adopted the technology of harvesting fruits based on ripening, uniformity in size and colour followed by alternate branch harvesting to get the ideal yield (92.00%) and periodical harvesting based on physiological maturity of fruits for getting the equal yield in all harvest (88.00%).
4. **Echam leaves:** With respect to Echam leaves, cent per cent of the tribal women had attended the training programme. Further, 80.00 per cent of tribal women had adopted the technology of plot and rotation harvesting.
5. **Honey:** With respect to honey, cent per cent of the tribal women had attended the training programme. Moreover, 88.00 per cent of the tribal women had adopted the technology of collecting the honey without mixing pollen and bee debris which leads to high keeping quality and the technique of heating honey to kill yeast to get clean honey (88.00%).
6. **Soap nuts:** With respect to soap nuts, cent per cent of the tribal women had attended the training programme. Moreover, cent per cent of the tribal women had adopted the technology of using gunny bags for collecting dry fruits followed by collection of dry fruits based on its metallic sound (90.00%).
7. **Beewax:** With respect to bee wax, cent per cent of the tribal women had attended the training programme. Further, 40.00 per cent of the tribal women had adopted the technology of preparing wax and value addition of soap, lip balm and candle by using bee wax.
8. **Jamun:** In Jamun, cent per cent of the tribal women had attended the training programme. Further, the tribal women had adopted the technology of collection and storage (82.00%).
9. **Kadukkai:** With respect to Kadukkai, cent per cent of the tribal women had attended the training programme. Further, 60.00 per cent of the tribal women had adopted the technology of collection and storage.

Conclusion

Non-wood forest products (NWFP) play an important role in the daily life and well-being of millions of people worldwide. NWFP include products from forests, from other wooded land and from trees outside the forest. Rural and poor people in particular depend on these products as sources of food, fodder, medicines, gums, resins and construction materials. Traded products contribute to the fulfilment of daily needs and provide employment as well as income, particularly for rural people and especially women. There is abundant availability of non -wood forest products in the selected district before the intervention of the project, tribals were using only traditional methods to collect the NWFPs and there was damage to plants and crops. They were trained in this scheme on use scientific methods for collecting, processing and storage of non- wood forest products. To conclude the technological intervention *viz.* capacity building to the tribal women played a major role in empowering them socially and economically by giving them self-confidence to become future entrepreneurs.

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