

Agro Forestry and Revenue Optimization among Farmers – with Reference to Tamil Nadu State (Cauvery Delta Zone)

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Abstract: In this era of global warming, fast degradation of land productivity and other environmental hazards affects agro forestry and natural resources and socio-economic sustainability. Agro forestry is found to be the most desirable strategy for maintaining social, economic and ecological sustainability in India. Therefore a study was undertaken in a district of Tamil Nadu to investigate the perception and attitude of farmers towards agro forestry, the adoption level of agro forestry practices and the socio-economic and ecological impact of agro forestry among farmers. The findings revealed that farmers show a positive attitude towards agro forestry. The impact of the adoption of agro forestry on the social, economic and ecological conditions of the farmers is significant. This study was done to brief about various advantages of Agro forestry which would earn an added income for the farmers.

Keywords: Agro forestry, Socio economic, Saplings, Income, Positive attitude.

INTRODUCTION

In 700 BC, man changed from a system of hunting and food gathering to food production. Shifting cultivation in India is prehistoric and partly a response to agro ecological conditions in the region. Horticulture as co-existent with agriculture is found to have been prevalent in India from early historic period (500 BC to first century) when a certain amount of share in garden crops started to have been enjoyed by the king for providing irrigation. India is agriculturally strong country we are known for the farming and agric based business. Indian GDP has a great contribution from agricultural sector. Indian economy is classified in three sectors — Agriculture and allied, Industry and Services. Agriculture sector includes Agriculture (Agriculture proper & Livestock), Forestry & Logging, Fishing and related activities.

Agro forestry is a collective name for land-use systems involving trees combined with crops and/or animals on the same unit of land. It combines: 1) Production of multiple outputs with protection of the resource base; 2) Places emphasis on the use of multiple indigenous trees and shrubs; History of Agro forestry in India

Briefing about Agro Forestry

Agriculture and forestry are two sectors that are inseparable, economically and ecologically. The development of agriculture and forestry in an integrated way is known as Agro-forestry. It is a system of mixed farming and forestry that has been used for millennium in many parts of the tropics' and is suitable for small scale family farmers. Agro forestry will improve the nutrient availability of soil fertility provided increased crop productivity as well as the overall improvement of the environment. It will also reduce erosion, provide firewood and enable storage of carbon. Further it will also prevent soil degradation due to exposure to tropical sunlight and rainfall during prolonged clearance. The trees act as nutrient and bring plant minerals nutrients from the depths to the surface soil layers, occupied by the roots of crops plants. It has also been established that agro-forestry can be used to reduce inputs of weeds and other agricultural pests.

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The traditional cropping leads to a high degree of uncertainty in yield, income and employment under dry land conditions. Agro forestry systems approach introduces a change in the farming techniques for maximum productivity in farming by optimal utilization of resources. Judicious mix of agricultural crops and other enterprises suited to the given agro climatic condition and socio-economic status of the farmer would improve the prosperity of small scale farmers. The present day trend towards sustainable agriculture encourages the utilization of residue and waste materials of crop and its allied activities for enrichment of soil nutrients, water retention to protect the environment over a long period.

This phenomenon made the policy maker and implementers to take appropriate corrective measures. Localized efforts as well as nationwide campaign were started in this regard. Agro forestry emerged as the soul of biodiversity conservation. Agro forestry, essentially a mixed cropping system, implies co-existence of farm and forests which can achieve both natural resources and socio-economic sustainability. Therefore, a research study was undertaken in 32 districts of Tamilnadu for over a period of 6 months by collecting the data right from the farmers on various aspects. This report is prepared to through light on various factors of increasing income, generating income during crisis for farmers, proportion of income generated by agro forestry adoption method etc. The researcher is also inclined to know the farmers' perception towards agro forestry, farmers' attitude towards agro forestry and adoption behaviour of

Objectives of the Study

1. To find which combination would help the best in income generation for the farmers.
2. To analyze and suggest the best method for livelihood with minimum expenditure.

REVIEW OF LITERATURE

Richard Robertson et. al. (2017) collectively with growing incomes, affect not only the generally ease of use and ease of access of food for millions of people but also their all-purpose hunger and nutritional. In 2030, the amount of hungry children is probable to decrease by 15–16 percent, and the person at risk of hunger is probable to decrease by 29–34 percent, compared to 2010.

Tati Rajati et. al. (2015) in the study sites had a leaning to cultivate their lands into monoculture farming system. However, due to bounded capital, the common of land applied for crops during the rainy season and the dry season permitted back natural plants. There is around 75% (49 people) of respondents stated that farmers require the resources to develop their lands, as a result in many research areas expanded vegetable crops and horticulture. Of the various horticultural crops and vegetables developed in the area of research, proves that people worried in terms of economics after than the environment. This happens since the group of people to prioritize the requires of short-term personal utilization.

S.J. Vermeulen et. al. (2012) we observed that accelerated version to progressive weather change over decadal time levels, alternatives for better management of weather risks comprise seasonal weather forecasts, index assurance, limited diversification and innovations in food systems.

Sinha et al. (2010) in a study on enhancing livelihoods of forest needy communities through synergizing FDA activities with other development programs establish that popular of the respondents were between the age group of 31-42 years that means a large percentage of villagers were from younger and middle age groups.

Kareemulla et al., 2009; Bijalwan et al., 2011 The productive, economic, human being, social and protective services of agroforestry were assigned superior values due to their socioeconomic and life supporting impact to the rural societies, which is in consistent with the previous workers.

Sood et. al. (2008) reported that majority of the agro forestry farmers were middle aged and there was no connection between on-farm tree cultivation and age of the head of the household.

Madiwalar et. al. (2007) found that the size of land holding was positively and significantly correlated with the extent of adoption of agro forestry model.

Nagesha and Gangadharappa (2006) observed a positive and significant association between farm power status and the adoption of agro forestry systems in north eastern districts of Karnataka

The favourable attitudes of people assure agroforestry promotion and development while unfavourable attitudes create agroforestry non-adoption and failure (Khandagale et al., 2012; Ratsimbazafy et al., 2012). (Singha, and Talukdar, 2002) Sustainable extraction of forest resources by the forest dwellers has been emphasized as a prominent strategy for their income and employment generation.

Singha and Talukdar (2002) observed that the social participation was having negatively significant relationship with the extent of utilization of forest resources.

Applicability

The purpose of the economic feasibility assessment is to determine the positive economic benefits to the stakeholders that the proposed system will provide. It includes quantification and identification of all the benefits expected. This assessment typically involves a cost/ benefits analysis.

The research carried out would help systemic evidence and data so that the farmers in Tamil Nadu can receive optimum yield and optimal gain.

METHODOLOGY

The data collected in Cauvery delta zones in Tamil Nadu. The farmers and the agro-forestry in each zone will be taken into account for the study.

Climatic Zones	Types of Inter-crops	No. of farmers
Cauvery Delta Zone	2-4	50

Planning Commission of India (1989) made an attempt to delineate the country into different agro climatic regions based on homogeneity in rainfall, temperature, topography, cropping and farming systems and water resources. For this study Cauvery Delta zone is selected. The Irrigated dry crops are - Sunflower, millets clayey soils with rice, banana and sugarcane are major crops such as, Rain fed crop millets.



Fig. 1: Mango trees and pumpkin patch Fig. 2: Finger millets and Sugarcane

Data Collection & Analysis: The data for the research work was primarily collected through personal interviews with the farmer. The collected data was interpreted and analysis was done to find the feasible solution for farmers.

Climatic Zones	Places Covered	No. of Blocks/ Taluks	No. of villages	Major crops
Cauvery Delta Zone	Thanjavur district, Musiri, Tiruchirapalli, Lalgudi, Thuraiyur and Kulithalai taluks of Tiruchirapalli district. Aranthangi taluk of Pudukottai district. Chidambaram and Kattumannarkoil taluks of Cuddalore and Villupuram district	14/8	904	Paddy, sugarcane, groundnut, cotton, sunflower, banana and ginger.

Findings

1. Sugar cane is fetching more profits as in the above data it is understood the farmers were ranked 1 and 2 had the same combination of paddy and sugarcane.
2. But even though farmer 1 did not do any farming in the 3rd year his yield was good when compared to the 2nd farmer.
3. A farmer who has worked with cotton only is standing 4th in the list.
4. Rank 1 and 2 for Paddy and sugar combination
5. Rank 3 for Paddy and Cotton

CONCLUSION

1. Farmers are eager to know more about more judicious mix of plants
2. Few farmers are risk averse and want to follow their traditional cropping system they need one to one interaction regarding the benefits of intercropping.
3. The farmers are on how their standard of living would change by implementing agro forestry system.
4. The farmers are well accepting the importance the agro forest system.
5. Understanding the drastic change in their economic condition which would help them in financially.

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