Journal of Extension Education
Vol. 27 No. 2, 2015

Adoption and Impact of Eco-Friendly Conservation Practices in The Nilgiris District of Western Ghats

L. Murali Krishnan[1], H. Philip[2], V. Ravichandren[3] and M. Chinnadurai[4]

ABSTRACT

The study was under taken to find out the relationship between the profile of the farmers of The Nilgiris district and the impact in their adoption of Eco Friendly Conservation Practices. The study revealed that educational status, risk orientation, training undergone, progressiveness, self reliance, innovativeness and contact with extension agency were found to have positively contributed to the adoption of Eco Friendly Conservation Practices. With respect to impact majority of the farmers opined that the cost of cultivation decreased followed by increased farmers confidence level, improved fertility status of the soil and improved biodiversity in the farm fields.

Commercial agricultural practices plays major threats and challenges to human and animal health as well as to our ecological niche of The Nilgiris biosphere reserve in various dimensions. These non eco friendly agricultural practices have increased agricultural productions but resulted in the rapid erosion of crop and livestock diversity, loss of inherent soil fertility, break down of biological pest regulation, soil erosion, salinization and environmental problems. Due to increased use of expensive and poisonous chemicals fertilizers and pesticides which finally made the farmers poorer and more dependent on markets and outside agencies. (R. J. Daniels, 1996).

Eco-Friendly Conservation Practices is a comprehensive system of widespread introduction of eco-friendly conservation which could be justified through the following arguments: (i) Eco - friendly conservation practices offer the possibility of long term sustainability (IFOAM. 2000). (ii) Eco-friendly agriculture is affordable for resource poor farmers (iii) Problem of farm unemployment could be minimized through ecological based alternate livelihood activities. (iv) The Nilgiris biosphere reserve's traditional farmers have a long heritage of farming with traditional wisdom, which acts as the basis for ecological knowledge.

METHODOLOGY

The Nilgiris district of Tamil Nadu was purposively selected due to the prevalence of wide biodiversity. All four blocks was taken for this study. The samples of 80 farmers were selected from each block. Totally, 320 respondents were selected from the district. The respondents have been selected based on the simple random sampling technique with the support of the state department of

1-Ph.D. Scholar, Department of Agricultural Extension and Rural Sociology, 2-Director of Extension Education, TNAU, 3-Dean, Vanavarayar Institute of Agriculture, Pollachi and 4-Director, CARDS, Tamil Nadu Agricultural University, Coimbatore-641003.

agriculture. Post stratification work was done to categorize the farmers in to adopters of Eco Friendly Conservation Practices (118) and non adopters of Eco Friendly Conservation Practices (202). The data were collected using a pre-tested interview schedule.

FINDINGS AND DISCUSSION

It could be observed from the Table 1 that educational status, risk orientation, training undergone, progressiveness and self reliance of farmers exhibited positive and significance relationship at one per cent level of probability.

Table 1.
Association and Contribution of Profile Towards the Adoption of Eco Friendly Conservation Practices

Sl. No.	Profile characteristics	Respondents			
		Correlation r	Regression ('b' value) coefficient	SE of b	't' value
1.	(X1) Age	0.064	-0.008	0.032	-0.250
2.	(X2) Educational status	0.619**	0.103	0.015	7.023**
3.	(X3) Occupational status	0.298**	-0.047	0.019	-2.528**
4.	(X4) Farming experiences	-0.063	0.030	0.033	0.931
5.	(X5) Farm size	0.025	-0.043	0.029	-1.465
6.	(X6) Annual income	-0.059	-0.038	0.026	-1.449
7.	(X7) Social participation	0.606**	0.019	0.020	0.927
8.	(X8) Economic motivation	-0.610**	-0.125	0.026	-4.764**
9.	(X9) Risk orientation	0.462**	0.102	0.039	2.600**
10.	(X10) Scientific orientation	0.583**	-0.030	0.032	-0.951
11.	(X11) Information seeking behaviour	0.523**	0.074	0.037	1.983
12.	(X12) Training undergone	0.583**	0.130	0.034	3.875**
13.	(X13) Progressiveness	0.536**	0.103	0.035	2.958**
14.	(X14) Perception on environmental degradation	0.448**	-0.002	0.043	-0.041
15.	(X15) Perception on environmental conservation	0.644**	0.040	0.031	1.273
16.	(X16) Innovativeness	0.699**	0.055	0.025	2.250*
17.	(X17) Self reliance	0.730**	0.104	0.024	4.381**
18.	(X18) Contact with extension agency	0.566**	0.028	0.012	2.315*
19.	(X19) Socio cultural linkage	-0.606**	-0.061	0.028	-2.199*
20.	(X20) Leadership abilities	0.646**	0.039	0.032	1.197

R^2 = 0.849 F = 61.50 Constant = 0.297

*P < 0.05- Significant at 5 per cent level;**P < 0.01 Significant at 1 per cent level; NS–Non-significant; NA-Not applicable

The other variables like innovativeness and contact with extension agency had positive and significant relationship at the five per cent level of probability.

It could be further observed from the Table 1 that occupational status and economic motivation level of the farmers had negative and significance relationship at one per cent level of probability. The variable socio-cultural linkage of the farmers had negative and significance relationship at the five per cent level of probability.

The regression results revealed from Table 1, indicated that all the selected twenty variables acted as cause to bring 84.90 per cent variation in adoption of eco friendly conservation practices. The prediction equation fitted for adoption of Eco Friendly Conservation Practices.

Adoption of Eco Friendly Conservation Practices in The Nilgiris district of Western Ghats in (Y) = 0.297 - 0.008 (X1) + 0.103 (X2) - 0.047 (X3) + 0.030 (X4) - 0.043 (X5) - 0.038 (X6) + 0.019 (X7) - 0.125 (X8) + 0.102 (X9) - 0.030 (X10) + 0.074 (X11) + 0.130 (X12) + 0.103 (X13) - 0.002 (X14) + 0.040 (X15) + 0.055 (X16) + 0.104 (X17) + 0.028 (X18) -0.061 (X19) + 0.039 (X20)

This revealed that an one unit increase in (X2) educational status, (X9) risk orientation, (X12) training undergone, (X13) progressiveness, (X16) self reliance, (X17) innovativeness, (X18) contact with extension agency, *ceteris paribus* would result in an increase of 7.023 units, 2.600 units, 3.875, units, 2.958 units, 2.250 units, 4.381 units and 2.315 units in overall adoption of eco friendly conservation practices respectively. Also, it is revealed that an one unit increase in (X3) occupational status, (X8) economic motivation, (X19) socio cultural linkage, *ceteris paribus* would result in a decrease of 2.528 units, 4.764 units, 2.199 units of adoption of Eco Friendly Conservation Practices.

It could be further observed from the table, that among the 20 variables, educational status, risk orientation, training undergone, progressiveness, self reliance, innovativeness and contact with extension agency were found to have positively contributed to the adoption of Eco-Friendly Conservation Practices.

The educated farmers because of their perception would have adopted the eco friendly agricultural products are facing marketing problems. So, the risk bearing abilities would help the farmers to adopt the Eco Friendly Conservation Practices.

Direct impact

Table 2 infers that with respect to direct impact, nearly one- fifth (18.63%) of respondents reported that increase in yield. Also, nearly half (43.22%) of the respondents reported that increase in income and 77.11 per cent of the farmers indicated that the cost of cultivation decreased.

The Eco Friendly Conservation Practices naturally do involve less cost of cultivation. However, the increased net income by reduced cost of cultivation was reported by the majority of the respondents. And so, the Eco-Friendly

Conservation Practices were more profitable though in the low yield condition.

Indirect impact

Personal impact

From the Table 2, 71.18 per cent of farmers suggested that their confidence level had increased, followed by 3.40 per cent of farmers perceived no change in the confidence level, and 25.42 per cent of farmers opined that the confidence level had decreased.

Further, 57.63 percent of farmers suggested that the exposure to media sources had been increased, followed by 6.08 percent of farmers perceived no change in the exposure and 35.59 per cent of farmers opined that the exposure to media sources had been decreased.

Awareness campaigns on the benefits of eco friendly conservation practices should be organized and there should be proper publicity and propaganda through mass media about the importance of Eco Friendly Conservation Practices in The Nilgiris district.

Table 2 further infers that in the case of personal impact, 46.61 percent of farmers suggested that the farmer's food and nutrition status had increased followed by 34.75 percent of farmers perceived no change in the farmer's food and nutrition status and 18.64 per cent of farmers opined that the farmer's food and nutrition status had decreased.

Majority of the farmer's food and nutrition status has been increased with the support of the increased concentrations of antioxidants and nutritional values in vegetables, fruits, grains, and dairy products.

Table 2 suggested that, 72.03 percent of farmers suggested that the farmer's health condition had improved, followed by 16.95 percent of farmers perceived no change in the farmer's health condition and 11.02 per cent of farmers opined that the farmer's health condition had declined.

The health status of the farmers has increased due to decreased health hazards in food chain because of their preference is very high for the eco friendly farm products.

Table 2 indicates that in the personal impact, 68.64 percent of farmers suggested that the farmer's decision making capacity had improved, followed by 6.78 percent of farmers perceived no change in the farmer's decision making capacity and 24.58 per cent of farmers opined that the farmer's decision making capacity had declined.

Majority of the farmers decision making ability were found increased in the eco friendly conservation practices. As these practices produce significantly higher yield under drought conditions, it has high market price. These factors enhance the decision making ability of the farmers.

Social impact

Table 2 reveals that in the case of social impact, 62.70 per cent of farmers suggested that their participation in social organization

Table 2.
Impact of Eco Friendly Conservation Practices in The Nilgiris district of Western Ghats **(n=118)**

Sl. No.	Impact	Increased		No change		Decreased	
		No.	%	No.	%	No.	%
I	**Direct impact**						
1.	Yield	22	18.63	6	5.1	90	76.27
2.	Income	51	43.22	3	2.54	64	54.24
3.	Cost of cultivation	21	17.79	6	5.10	91	77.11
II	**Indirect impact**						
A	Personal impact						
1.	Confidence in eco-friendly cultivation	84	71.18	4	3.40	30	25.42
2.	Opportunity to know about development activities	38	32.20	52	44.07	28	23.73
3.	Exposure to media sources	68	57.63	8	6.08	42	35.59
4.	Consultation by fellow farmers	48	40.68	27	22.88	43	36.44
5.	Food and Nutrition	55	46.61	41	34.75	22	18.64
6.	Health condition	85	72.03	20	16.95	13	11.02
7.	Decision making capacity	81	68.64	8	6.78	29	24.58
B	**Social impact**						
1.	Participation in social organization	74	62.70	6	5.10	38	32.20
C	**Economic impact**						
1.	Investment in savings	56	47.46	41	34.74	21	17.80
2.	Purchase of agricultural implements	25	21.19	71	60.17	22	18.64
3.	Purchase of vehicles	28	23.73	72	61.02	18	15.25
4.	Livestock and poultry ownership	66	55.93	30	25.43	22	18.64
D	**Environmental impact**						
1.	Soil fertility	87	73.73	16	13.56	15	12.71
2.	Improvement in water level	88	74.57	6	5.10	24	20.33
3.	Biodiversity conservation	80	67.80	24	20.34	14	11.86

had increased, followed by 5.10 per cent of farmers perceived no change in the participation in social organization and 32.20 per cent of farmers opined that the participation in social organization had decreased.

In the Eco-Friendly Conservation Practices, the social motivation factor helps to improve the decision making ability and increased Participatory Technology Development (PTD) practice. So, through the trainings, motivation and campaigns, change agents can improve

knowledge and skill on eco friendly conservation practices.

Economic impact

From Table 2 it could be seen that, 47.46 per cent of farmers suggested that their investment in savings had increased, followed by 34.74 per cent of farmers perceived no change in savings and 17.80 per cent of farmers opined that the savings had decreased.

The savings of the farmers had increased due to less expenditure towards usage of external inputs. Practicing intercropping increases effective utilization of land, reducing the weed growth and providing additional income.

It could be further observed from the Table 2 that 55.93 per cent of farmers suggested that the purchase of livestock and poultry ownership had increased, followed by 25.43 per cent of farmers perceived no change in the purchase of livestock and poultry and 18.64 per cent of farmers opined that in the livestock and poultry ownership had decreased.

The increased livestock and poultry ownership helps to support the Eco Friendly Conservation Practices and the possibility of effectively converting all the available crop and solid waste recycling into various types of composts and manures to sustain the soil fertility and production. It reduces the indiscriminate application of inorganic fertilizers and the less application of external organic manures.

Environmental impact

In the case of environmental impact, 73.73 per cent of farmers suggested that the fertility status of the soil has improved followed by 13.56 per cent of farmers who perceived no change in the fertility status of the soil and 12.71 per cent of farmers opined that the fertility status of the soil had been decreased.

Majority of the farmers inferred that the Eco Friendly Conservation Practices prevent soil, nutrient depletion and increase soil health by less usage of chemical fertilizers.

Table 2 further infers that in the case of environmental impact, 74.57 per cent of farmers suggested that the ground water level was increased in the farm level followed by 5.10 per cent of farmers perceived no change in the ground water level and 20.33 per cent of farmers opined that the ground water level had decreased.

Majority farmers suggested that the ground water level increased with the adoption of eco friendly soil and water conservation practices. It also helps to improve the efficiency of irrigation water.

It could be observed from the Table 2 that 67.80 per cent of farmers suggested that the biodiversity of the farm had improved with the result of a number of indigenous species cultivated in the field level, followed by 20.34 per cent of farmers perceived no changes in the biodiversity of the farm and 11.86 per cent of farmers opined that the biodiversity of the farm had decreased.

Majority of the farmers suggested that the bio diversity of the farm increased with the increased impact of floral diversity, faunal diversity, habitat diversity, landscape, soil organic matter improvement, soil biological activity, soil structure, soil erosion, reduced nitrate leaching and pesticide residues, nutrient use efficiency, water use and energy use efficiency.

Eco friendly conservation practices like Integrated Nutrient Management (INM), Integrated Farming System (IFS). Eco-Friendly Conservation Practices helps to control pests, use of pest resistant varieties, preservation and conservation of household waste, increases the usage of bio-fertilizer, farm yard manure and compost as the best soil microbial activity .

CONCLUSION

Educational status, risk orientation, training undergone, progressiveness, self reliance, innovativeness and contact with extension agency were found to have positively contributed to the adoption of Eco-Friendly Conservation Practices. With respect to impact, majority of the farmers opined that the cost of cultivation decreased followed by increased confidence level, improved fertility status of the soil and improved biodiversity in the farm fields.

REFERENCES

IFOAM. 2000. Organic Agriculture and Fair Trade: Two Concepts Based on the Same Holistic Principal. Online report. International Federation of Organic Agriculture Movements. Germany. Available at: www.ifoam.org.

R. J. Daniels. 1996.The Nilgiri Biosphere Reserve: a Review of Conservation Status with Recommendations for a Holistic Approach to Management (India).