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Techno Economic Feasibility of Ericulture in the plain of North East India

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ABSTRACT: Ericulture significantly contributes to the Indian Silk Production which is a traditional agro-based industry in the rural plain of North East India. Eri silk has its utility especially as winter cloth as it has good thermal properties and is cheaper than wool. Ericulture gives a wide and sustainable employment and addition income of a wider section of rural population in the North East India which engages near 1.3 lakh families in this region. To study techno economic feasibility of Ericulture in the plain of North East India, Khortigagai of Titabar Sub-Division in the Jorhat district of Assam was selected. The information on cost of inputs in food plant and silkworm rearing was recorded and the value of cocoon obtained were taken into consideration to ascertain the cost benefit ration which was recorded as 1:1.80, which revealed that Ericulture is a profitable venture for the poor and marginal farmers of North East India.

Keywords: Economics, cost-benefit ratio, Ericulture.

INTRODUCTION

Ericulture significantly contributes to the Indian Commercial Silk Production which is mostly confined to the Brahmaputra Valley of Assam in the tribal inhabited districts. (Gogoi *et al.,* 2011). Ericulture is a traditional agro-based industry in the rural area. The Eri Silk is rich among the rural people, which gives thermal property during the winter season. In terms of contribution to employment and income by all the four major Sericulture activities of Assam (Viz Eri, Muga, Mulberry and Tasar), Ericulture occupies the prime position among the poor rural masses (De and Das, 2009). The Eri Silk has its utility (especially as winter cloth) and comparatives lower price than the other silk varieties; it gained much popularity among the middle and lower middle income population across the state and other parts of India (Das, 2008). The Eri Silk has a scope for Sustainable employment and income of a wider section of rural population. Eri-Fabric is also called "Poor Man's Silk" as it is cheaper than Muga and Mulberry silk (Benchamin and Jolly, 1987).

A large number of families were found to come out of poverty or acute poverty due to their engagement in eri rearing and weaving activities (De and Das, 2009). Approximately, 1.3 lakh families with plantation area of 26000 hectares are involved in Ericulture in northeastern region of this country. Annual production of eri raw silk has significantly increased from 974MT in 1999-2000 to 2460.50MT in 2009-10 (Gogoi *et al.,* 2011).

Accounting to the Sate Sericulture Department of Assam, The Assam State has produced 810.98MT Eri Raw Silk during the year 2010-11 as against 819.09MT Eri Raw Silk in the state during the year 2009-10 and during the year 2008-09, the production of Eri Raw Silk 810.00MT (http://db.nedhi.com/content/sericulture-assam). Eri Fabric is highly durable and has thermal property, which makes an alternative fibre to wool. The Assam state is also to be the original home of eri and muga silk in the world and thus, they are popularly known as the ASSAM SILK.

To Study the estimate the cost and return structure in Ericulture of Titabor Sub-division and to known the present trends of cost and return from the Ericulture.

METHODOLOGY AND METHODS

The study was conducted in Khortigagai Mouza of Titabar sub-division of Jorhat District of Assam. Fifty farmers were randomly selected for the study. The data were collected by direct interview method using pre-tested structured schedule. The data were analyzed by simple tabular method. The information on cost of inputs in castor and silkworm rearing and the value of cocoon harvested were recorded for the period 2011-12.

RESULT AND DISCUSSION

A. Cost of Castor leaf Production

Castor (*Ricinus Communis Linn.*) is grown as annual plant or by a few as biannual plants for feeding purpose to eri silkworm. The cost of garden establishment is considered as fixed cost in castor leaf production.

In estimating the fixed cost of castor garden, it was uniformly considered the economic yielding of the garden with regard to the percentage share of cost on leaf production among the sample households share had gone to human labour (28.81%) followed by miscellaneous and other expenses (19.72 %), Animal and Tractor labour (12.60%), interest on working capital (8041%), Farm Yard Manure (6.41%), Fertilizer (3.40%), Seed/Seedling cost (1.37%) and Chemical (0.11%). In quantitative term (table 1), an average of Rs.526.00 was incurred toward human labour for attending cultural operation and leaf harvesting where as Rs.230.00 was spent for animal/tractor labour for ploughing. In the case of Farm Yard Manure and Fertilizer use, the costs were Rs.117.00 and Rs. 62.00 respectively. It was informed by the farmers that they apply very less amount of chemical fertilizer and Farm Yard Manure for the production of castor leaf was worked out to Rs. 1825.6 per Katta land per year.

Table 1: Cost of Castor leaf Production (Rupees/katta land/year).

Sl. No.	Resource	Cost (Rs.)	Percentage Share of Total Cost (%)
A. Operational Cost			
1	Human Labour*	526.00	28.81
2	Animal/Tractor Labour	230.00	12.60
3	Farm Yard Manure	117.00	6.41
4	Fertilizer	62.00	3.40
5	Chemical	02.00	0.11
6	Seed/ Seedling cost	25.00	1.37
7	Misc./other Expenses	360.00	19.72
8	Interest on working capital @ 12% per annum	153.56	8.41
Total operation cost (A)		1475.56	80.83
B. Fixed cost (Share of garden establishment)**		1750	
C. Depreciation on Fixed cost		350	19.17
Total Cost (A+C)		1825.56	100

Note: *Human Labour (both owned and hired) engaged for garden maintenance and shoot/leaf harvesting activities.
** Share of garden establishment, *** 1 katta land is equal to 0.083 acre land.

B. Cost of Cocoon Production

For the rearing of Eri silkworm, a separate rearing house and various appliances are required, besides other inputs like Disease free layings (eggs), materials for disinfection and human labour. Like the leaf production the Eri silkworm rearing is done round the year. It can be estimated from the Table 2 that the fixed cost incurred 64.95% (Rs. 5522.50) which was the highest share from all the costs. In the Fixed cost the rearing house and equipment followed by Interest on fixed capital.

Again from Table 2 the operational cost incurred 35.05 percent (Rs.2980.73). In the operational cost the human labour, Disease free laying, materials for disinfection, marketing, interest on working capital and castor leaf.

Therefore, the Gross return from the cocoon production is Rs.15023.20 and the total cost of production is Rs. 8503.23. The Main net return from the cocoon is Rs. 6519.97. The cost and benefit ratio was estimated to be 1:1.80. This indicator (Cost and Benefit ratio) Suggest that Ericulture is a profitable venture for the farmers.

Table 2: Cost and Return structure from cocoon production (Rupees/katta land/year).

Sl No.	Particulars	Cost (Rs.)	Percentage Share of Total Cost (%)
A. Fixed Cost			
a.	Expenses of rearing house	23000.00	
b.	Expenses of rearing house equipment		
i.	Bamboo Tray	304.00	
ii.	Bamboo/Wooden stand	440.00	
iii.	Chandaki/moultage	335.00	
iv.	Bucket	230.00	
v.	Other expenses	345.00	
Total Cost (b)		1654.00	
c.	Depreciation on rearing house and equipment	4930.80	57.99
d.	Interest on fixed capital @ 12% per annum	591.66	6.96
Total Cost (A)		5522.50	64.95
B. Operational Cost			
i.	Human Labour*	616.00	7.24
ii.	Disease free layings	86.40	1.02
iii.	Materials for disinfection	143.00	1.68
iv.	Marketing**	186.00	2.19
v.	Interest on fixed capital @ 12% per annum	123.77	1.46
vi.	Castor leaf	1825.56	21.47
Total Cost (B)		2980.73	35.06
Total Cost [A+B]		8503.23	100.00
C. Returns			
a.	Cocoon shell production	7.60	

b.	Pupae production	43.40	
c.	Sale of cocoon shell	1991.20	
d.	Sale of Pupae	13032.00	
Gross return		15023.20	
Total Cost (A+B)		8503.23	
Net Return [C-(A+B)]		6519.97	
Cost Benefit ratio		1:1.80	

Note: * The human labour (Cost imputed for both owned and hired) is used for rearing house disinfection, Cleaning, leaf feeding, mounting, harvesting and marketing; ** Transportation, market fee.

CONCLUSION

Although the study has revealed that Ericulture is a profitable venture for the farmers of that area. Considering the higher scope for own family employment opportunities and periodical return in Ericulture, this may be given higher priority for expansion of Ericulture in the study region. It can also be more profitable venture if entrepreneur goes for vast expansion and in large quantum area, then it will gain more profit. Again, there is a need a training need assessment for that study region for the better production. These measures would help to improve Ericulture development in the long run.

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