

Original Research Article

Economics of Mulberry Leaves Production in Parbhani District

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ABSTRACT

The present study was conducted to assess economics of mulberry leaves production in Parbhani district. Sericulture is an agro-industry, the end product of which is silk. Silk is fibrous protein of animal organ produced by the silkworm for spinning a cocoon. Sericulture is a labour intensive agro-industry in all its phases, viz. food-plant cultivation, silkworm rearing, silk reeling and other off-farm activities such as twisting, dyeing, weaving and printing. Sericulture industry includes all the agricultural practices of mulberry cultivation silkworm rearing etc. By considering all these things of industry it is recognized as the source of socioeconomic development of economy of India. Multistage sampling design was adopted in the selection of district, tahsils, villages and sericulture farmers. Parbhani district was purposively selected on the basis of availability of area under sericulture production. The primary data was collected for sixty growers from the study area. For analyzing the data in the present study the analytical techniques such as tabular analysis and standard cost concept namely Cost-A, Cost-B and Cost-C were adopted. The result showed that the gross return from per hectare mulberry garden estimated was Rs. 263182.5 with cost of cultivation Rs. 130680.20. The output - input ratio obtained was 2.09 whereas per kg cost of cocoon production obtained was 215.82.

Keywords

Sericulture, Agro-industry, Socio-economic development, Mulberry farmers

Introduction

Sericulture is an agro-industry, the end product of which is silk. Silk is fibrous protein of animal organ produced by the silkworm for spinning a cocoon. Silk has natural sheen and inherent affinity for dyes, light weight, soft touch and high in durability. Because of these unique characteristics silk is termed as “Queen of Textiles”. India is the only country in the world to produce all the five known commercial silks, viz. 1) Mulberry (*Bombyx mori*) 2) Tasar (*Antheraea paphia*) a) Tropical Tasar b) Oak Tasar 3) Eri (*Philosomia ricini*) 4) Muga (*Antheraea assama*). India is second largest producer of

raw silk in the world next to china. The raw silk production of India was 35261 MT in 2018-19. The raw silk production of Maharashtra was 2538.557 MT in 2018-19 and in Parbhani it was 44.687 MT in 2018-19. India was the largest importer of raw silk and largest consumer of the silk in the world. Sericulture is basically an agro based rural industry which includes both farm and industry.

This facilitates opportunities for millions and meant for its high employment potential, low capital requirement with higher return. By considering all these things of industry with

its on-farm and off-farm activities it becomes the point of attraction for all the policy makers and the planners to recognize the industry, as the source of socioeconomic development of economy of India. Cultivation of mulberry plants is called as Morigulture. Mulberry sericulture involves the cultivation of mulberry to produce leaf, rearing of silkworm to convert leaf to cocoon, reeling of the cocoon to obtain silk yarn and weaving to convert yarn to fabrics. Mulberry sericulture is mainly practiced in five states namely; Karnataka, Andhra Pradesh, Assam and Bodoland, West Bengal, Jharkhand and Tamil Nadu are major silk producing states in the country. Sericulture includes many small works such as cutting of leaves from plants, providing food materials to silkworm larva, handling of larva etc. and carefully handling is needed for such works because larva is very sensitive and small in size.

Materials and Methods

Sampling design

Multistage sampling design was adopted in selection of district, Tehsils, villages and sericulture growers. Parbhani district was purposively selected on the basis of availability of area under Sericulture production. On the basis of area under sericulture production, two tahsils of Parbhani district was selected namely, Purna and Manwat for the present study. The total sample size was 60 growers were selected. Cross sectional data were collected with the help of well-structured, pretested scheduled by personal interview method. The data were collected during the year 2019-2020. Analytical techniques were used to achieve socio-economic characteristics of sericulture farmers were achieved by tabular analysis techniques. Per quintal cost of mulberry leaves production was achieved by the application of standard cost concept namely Cost-A, Cost-B and Cost-C.

Results and Discussions

Socio economic characteristics of sericulture growers like age of sericulture farmers, level of education, size of family, land holding, area of mulberry etc. were estimated and presented in the Table no. 1. It could be seen from the table that average age of mulberry growers estimated was 40.28 which states that the experienced person were engaged in the mulberry cultivation. Age is characteristics which directly or indirectly influencing the factors like, technical knowledge, skill, knowledge of adoption etc.

Education is another important factor which helps in changing the attitude of sericulture farmers through adoption of sericulture enterprise.

Results revealed that the level of education of the sericulture farmers obtained was 2.48 i.e. the educational level of selected farmers was above the higher secondary school. In order to measure the educational level scoring method was adopted. Size of family is an important socioeconomic status that indicates the number of family members engaged in the sericulture business. It is evident from the table that the average size of family of the sericulture growers was 6.71 which showed that there were 6 to 7 numbers of family members.

Land holding is another important socioeconomic status that states about the level of production of selected sericulture farmers and affects the farmer's economy directly. It was inferred that the average land holding of selected farmers was 3.10 ha that indicated the selected sericulture growers were categorized as medium farmers. Out of the total land holding the area under mulberry cultivation was 0.65 ha. The average number of livestock animal that were available on farm was 2.85. On an average 4.16 batches of cocoon production were taken by the selected

farmers in a year. Investment on commonly used asset was Rs.31705.15. The level of occupation was 1.03 scores. It was observed that most of the sericulture farmers were engaged in agriculture along with sericulture.

Cropping pattern of sericulture producer

Cropping pattern is another important factor which indicates farmer’s economic condition. Simply, cropping pattern the production of area under various crops at a point of time. The cropping pattern of selected sericulture farmers was calculated and presented in Table 2. The result revealed that the major area under cultivation was under *kharif* crops followed by *rabi*.

The gross cropped area was 5.96 hectares. The total area under *kharif* crops was 2.44 ha. The area under *rabi* crops was 1.71 ha, and 0.64 ha area was under *summer* crops. It was also estimated that the area under soybean was 0.92 ha that was 25.25 per cent grown as predominant crop in *kharif* season. Out of the *rabi* crop proportionate area under gram was highest as 0.66 ha (12.36 per cent). In *summer* season the area under groundnut observed was 1.64 per cent. In regard to annual crop, mulberry and sugarcane crop was cultivated on 0.65 ha and 0.52 ha respectively in the study area. The net sown area was 3.06 ha with the cropping intensity 194.77 per cent on the selected sericulture farm.

Table.1 Socio economic characteristics of sericulture producer

Sr. No.	Particular	Unit	Mean/Score
1.	Age of farmer	year	40.28
2.	Education level in five Quantum score	score	2.48
3.	Occupational level	score	1.03
4.	Family size	no	6.71
5.	Land holding	ha	3.10
6.	Mulberry area	ha	0.65
7.	Livestock position	no	2.85
8.	No of batches taken in a year	no	4.16
9.	Investment on commonly Used assets	Rs	31705.15

Table.2 Cropping pattern of sericulture grower (ha/farm)

Particular	Area(ha)	Per cent
<i>Kharif</i>		
Soybean	0.92	25.25
Cotton	0.72	13.91
Turmeric	0.07	1.85
Udid	0.06	0.61
Tur	0.36	1.13
Mug	0.31	3.40
Sub total	2.44	
<i>Rabi</i>		
Gram	0.66	12.36
Wheat	0.45	7.52
<i>Rabi</i> Jowar	0.60	7.42
Sub total	1.71	
<i>Summer</i>		
Groundnut	0.64	1.64
Sub total	0.64	
Annual		
Mulberry	0.65	91.81
Sugarcane	0.52	2.16
Sub total	1.17	
Gross cropped area	5.96	100
Net sown area	3.06	----
Cropping intensity (%)	----	194.77

Table.3 Annual physical inputs and output used in mulberry cultivation

Particular	Physical Unit	Mulberry garden (unit/ha)
INPUT		
1. Hired human labour	man day	32.05
2. Bullock labour	pair day	6.83
3. Fertilizer		
(a) nitrogen	kg	89.67
(b) phosphorus	kg	67.34
(c) potash	kg	6.76
4. Manure	Qt	150
5. Irrigation	Number	34
6. plant protection	Lit	11
7. Family labour	man day	21
OUTPUT		
1. Main produce (leaves)	Qt	584.85

Table.4 Per annum expenditure in the mulberry cultivation

Particular	Amount (Rs/ha)	Percent
Costs		
1. Hired human labour	9615	7.36
2. Bullock labour	3415	2.61
3. Manures	22500	17.22
4. Fertilizer	3988.87	3.05
5. Plant protection	6600	5.05
6. Irrigation	6110.61	4.67
7. Land revenue	74.61	0.05
8. Incidental expenditure	499.35	0.38
9. Interest on working capital @13%	6864.44	5.25
10. Depreciation on capital assets @10%	1200.31	0.92
11. Cost-A (Σ items 1 to 10)	60868.19	46.58
12. Rental value of land	43789.14	33.50
13. Interest on fixed capital @12%	3813.57	2.92
14. Amortization cost	15909.3	12.17
15. Cost-B(Σ items 11 to 14)	124380.20	95.18
16. Family human labour	6300	4.82
17. Cost-C (Σ items 15 to 16)	130680.20	100
RETURNS		
18. Main produce	263182.5	100
19. Gross return	263182.5	100
20. net return	132502.3	----
21. Output input ratio (GR/Cost-C)	2.01	----
22. Per quintal cost of leaves production	223.44	----

Cost of cultivation of Mulberry cultivation

Use of physical inputs and output in mulberry cultivation

Per hectare physical inputs and output used under mulberry cultivation were calculated and presented in Table 4.3. It could be seen from the table that on an average per hectare use of hired human labour was 32.05 man days, the total family labour used was 21 man days and use of bullock labour was 6.83 pair days. The total amount of manure used for cultivation of mulberry was 150 qt. In regard to fertilizer use of nitrogen, phosphorus and potassium, it was 89.67, 67.34, and 6.76 kg, respectively. Plant protection chemical used was 11 liter.

The total number of irrigations was 34 given to 0.65 ha. In regard to total output produced from mulberry farm of 1 hectare it was 584.85 qt.

Per annum expenditure in the mulberry cultivation

Per hectare annual expenditure in mulberry cultivation was estimated and presented in Table 4.4. It could be seen from the table that per annum per hectare cost of cultivation of mulberry cultivation was Rs. 130680.20. The highest proportion of expenditure was under rental value of land of Rs. 43789.14 with 33.50 per cent followed by manure Rs. 22500 with 17.22 per cent. The amortization cost was Rs. 15909.3 with 12.17 per cent and hired human labour was Rs. 9615 with 7.36 per cent. The total expenditure on plant protection, fertilizer and on irrigation observed was Rs. 6600 with (5.05 per cent), Rs.3988.87 with (3.05 per cent), Rs. 6110.61 with (4.67 per cent). In regard to income generation from mulberry cultivation, per

annum per hectare returns generated was Rs. 263182.5 per hectare net return from mulberry cultivation was Rs. 132502.3 with benefit-cost ratio calculated was 2.01. Per quintal cost of mulberry production was estimated to Rs. 223.44.

In conclusion, the sericulture growers were middle aged with high school level. The total land holding possessed about 3.10 ha. The average size of family of the sericulture growers was 6.71. The area under mulberry cultivation was 0.65 hectares which indicated that important share in cropping pattern with 91.81 per cent. Net profit obtained from mulberry cultivation from one hectare was Rs. 132502.3. Per quintal cost of mulberry production was estimated to Rs. 223.44.

References

- Beula Priyadarshini, M. and Kumari, N.V. (2017). A study on the adoption of improved sericulture technologies and success of sericulture in Chittoor and Kadapa districts of Andhra Pradesh, India. *International Journal of Applied Agricultural Research*, 12(1): 43-48.
- Dewangan, S.K. (2017). Sericulture play key role to employment generation and socio-economic empowerment of tribal women. *International Journal of Advanced Research and Development*, 2(6): 761-768.
- Nadarge, S.C., Munde, T.B. and Gawande, S.C. (2017). Economics analysis of sericulture cultivation in beeddistrict. *Trends in Biosciences*, 10(44): 9162-9166.
- Pawar, B.R., Mane, A.L., Chivare, S.A., and Kauthekar, P.U. (2012). Economics of production and marketing of mulberry leaves in Maharashtra. *International research journal of Agricultural Economics*, 3(2): 314-317.

Raju, M. and Sanappa, B. (2018). Comparative costs and returns of mulberry and cocoon production under rainfed and irrigated condition—An economic analysis. *Asian journal of Agricultural Extension, Economics and sociology*, 26(1): 1-11.

Susikaran, S., Sambathkumar, S. and Sridhar, R.P. (2019). Comparative study of economics of mulberry silk production in North Western and Western Zones of Tamil Nadu. *Journal of Pharmacognosy and Phytochemistry*, SP2: 665-667.