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Analysis of sericulture 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, talhsils, 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 technique i.e 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 farmer

Introduction

Word sericulture is derived from the Greek ‘Sericos’ meaning silk and English ‘Culture’ meaning rearing. 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 (*Philosamia ricini*) 4) Muga (*Antheraea assama*). India is second largest producer of raw silk in the world next to China^[1]. 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 Moriculture^[2]. 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^[3]. 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. These works can be properly done by women. Thus ultimately this facilitates great opportunities for the women also.

Material 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.

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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 technique was used to achieve per quintal cost of mulberry leaves production was achieved by the application of standard cost concept namely Cost-A, Cost-B and Cost-C.

Result and discussion

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 days⁴. 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.

Table 1: Annual physical inputs and output used in mulberry cultivation

S. No	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

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^[4]. 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.

Table 2: Per annum expenditure in the mulberry cultivation

S. No	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	----

Conclusion

Study shows that net profit obtained from mulberry cultivation from one hectare was Rs. 132502.3 and per quintal cost of mulberry production was estimated to Rs. 223.44.

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