II.1. INTRODUCTION

There are quite number of studies on economics of different crop enterprises and on productivity of crops. The studies relating to mulberry cultivation, raw silk production and cocoon production and comparative economics of sericulture and alternative crops are very limited. Hence, in this chapter brief review of the studies made in the past is presented in this section under the following heads. 1) Studies relating to employment generation in sericulture. 2) Studies relating to cost and returns

II.2. STUDIES RELATING TO EMPLOYMENT GENERATION IN SERICULTURE

According to Rama Rao (1978), one hectare of sericulture which included mulberry cultivation and silkworm rearing would provide employment for at least two families of five persons each.¹

According to Murthy (1978), the labour employment per hectare was 1006 man days. Besides the human labour employment, the sericulture activity employed 53 pair days of bullock labour per hectare.²

Rajagopal (1980), indicated that one hectare of mulberry can also provide employment for twelve man years, which is possible with a meager investment of Rs. 500 per hectare in sericulture. He also indicated that
sericulture provided two times more employment (538.0 man days) per acre, per year than that of alternative crop enterprises (252 man days).³

Sathish (1985), based on their study in Pithepuram block of East Godavari, Andhra Pradesh concluded that dairy sericulture farming system with adequate credit facilities created the highest employment opportunity than dairy farming system.⁴

While assessing the employment potential in sericulture in India, Krishna swamy (1986), found that about five persons could be engaged in one acre of mulberry garden throughout the year under Indian conditions.⁵

Saluja (1986) suggested that women staying in houses could easily rear in a month about 20 Disease Free Layings of bivoltine which would provide 118 hours of employment from which the total earning was Rs. 177 amounting for a return of Rs. 1.50 per hour. Hence it was concluded that cocoon rearing had strong potential for gainful employment for women labour.⁶

Giridhar (1986) observed that the mulberry cultivation constituted 13.20 percent of the total agricultural land in 8 districts of Karnataka. It was reported that the sericulturist harvested 4 to 5 crops per year. The results also indicated that about 65 percent of the family members were being engaged either on full time or part time basis in sericulture.⁷

Several studies have shown that there is a large scale employment and high yield potential in sericulture. (Hanumappa 1986 Rajapurohit and
Since silk production activities are all under informal sector and are manual in nature about 90 percent of the employment goes to land less and marginal farming families. Several studies have focused on the technology in sericulture. It indicated that the sericulture activity provides employment for 607 man days and 827 women days, besides a net income of Rs. 7018.72 per hectare of cocoon production.  

Chandrashekar Reddy R. (1990) observed that sericulture is a highly labour intensive enterprise requiring about 538 man days of labour per acre in comparision to the reuirement of labour 252 man days for the cultivation of the alternative crops.  

Kumara swamy B.K. (1993), observed that sericulture is being labour intensive, it is eminently suited to the economy of the small farms ensuring high employment opportunities to 664 man days of family labour to total labour per acre as compare to only 381 for alternative crops.  

Jaganathan L. (1996), Indicated that sericulture provided more employment opportunites to family labour that is 70 % of total labour compared to alternative crops 44 % only.  

II.3. STUDIES RELATING TO COST AND RETURNS:  

According to Murthy (1977), the total cost of establishment was Rs. 1675 per hectare of mulberry, while the total cost of cocoon production was Rs. 14082 per hectare of which 93 percent was the operational cost. The net return
from mulberry cultivation was Rs. 7430, while it was Rs. 8202 from cocoon production. The gross and net returns per Kg. of cocoons was Rs. 18.83 and Rs. 7.27 respectively.  

Rama Rao (1978), indicated that one hectare of mulberry would provide a net return of Rs. 6372, while from jute it was Rs. 2512 from pulses, Rs. 3314 and Rs. 5201 from sugarcane.  

Schetti & Dhothe (1978), indicated that sericulture activity provided the highest income of Rs. 22,672 per year while it was only Rs. 6915 from other alternative crops under Indian farming conditions.  

Garg (1979), found that mulberry would provide a net return of Rs. 15,715 per hectare, per annum under Indian conditions, while the net income per hectare from other crops was Rs. 3,137 from jute, Rs. 4,056 from paddy and wheat Rs. 1,424. Further, he observed that one hectare of mulberry employment to about 12 man years.  

Ayyaswamy (1980), studied the income and employment potential of sericulture in Coimbatore district of Tamilnadu. It was reported that establishment cost of mulberry garden was Rs. 2,437 and the total cost of mulberry cultivation which includes the establishment cost was Rs. 16,906 per hectare.  

Lakshmi Narayana Rao (1980), estimated the establishment and cultivation costs of an hectare of mulberry leaf production to be Rs. 1,394 and
Rs. 7,541 respectively in Anantapur district of Andrapradesh. The cost of production per Kg. of leaf was Rs. 0.27 while it was Rs. 15.00 per Kg. of cocoons.\textsuperscript{17}

Rajagopalan (1980) in his study in Tamilnadu, observed that sericulture capable of providing Rs. 15,700 gross income per hectare per year as against Rs. 3,800 from jute and Rs. 7,000 from cotton.\textsuperscript{18}

Shabhaumik and Mukhopadhyay (1980), in their study on cost of cultivation of mulberry and other crops, found that small farmers had higher costs per acre (Rs. 3,051) than the large farmers (Rs. 2,987) in West Bengal. A positive relationship was observed between size of mulberry holding and net profit per acre. On an average net profit per acre from mulberry silk production was Rs. 1,716, while it was Rs. 499 from Aman paddy. They also found that the silk production could create an employment of 693.87 labour days, while it was 78 labour days from Aman paddy.\textsuperscript{19}

Rajapurohith and Govidaraju (1981), investigated the employment and income potential in sericulture in Mysore and Kolar districts of Karnataka. The results shows that out of Rs. 9,166 household income, Rs. 7638 was from sericulture and thus the sericulture income accounted for 83.33 percent of the total household income under rainfed conditions. On the other hand, in the irrigated condition 77.3 percent of the total family income of Rs. 19,043 was from sericulture. The employment of human labour per acre of mulberry
cultivation and cocoon production was 191.02 man days on irrigated sericulture farms, while it was 166.68 man days per acre on rainfed farms.  

Rao (1981), found that the recurring expenditure per acre of irrigated mulberry garden was Rs. 800, while the non-recurring expenditure for rearing equipment was Rs. 850 in Andra Pradesh. The net income per acre from cocoon production was Rs. 2000 in the first year. He indicated that the net income may be between Rs. 6000 and Rs. 8000 from second year onwards.  

Neelakanta Shastry (1982), estimated the cost structure of sericulture industry in Chittur district of Andra Pradesh and found that to establish an hectare of mulberry garden it would cost Rs. 1785 for small farm, Rs. 1440 for medium and Rs. 1450 for large farms. The cost of maintenance of mulberry garden which includes the annual share of establishment cost was Rs. 9546, Rs. 7904 and Rs. 6606 per hectare for small, medium and large farms respectively. The total cost of cocoon production per hectare, per annum was Rs. 22,210, Rs. 17,963 and Rs. 14,610 for small, medium and large farms respectively. The gross returns were Rs. 35,579 for small farms, Rs. 33,603 for medium farms, and Rs. 31,091 for large farms, while the net returns were Rs. 13,368, Rs. 15,640 and Rs. 16481 respectively. Cobb-douglas type of production function and the results of the study indicated that the selected six variables explained 93 percent of variability in the yield of silk cocoons. It was further revealed that the marginal value products of the cost of eggs, marketing charges and the
cost of disinfectants have appeared positive and hence the possibility is their further increase.22

Anonymous (1983), observed that 10,000 cultivators in Andra Pradesh being engaged in mulberry cultivation, silkworm rearing and cocoon production. It was indicated that the net income may range from Rs. 2000 to Rs. 3000 per acre per crop and the farmers are generally confident of taking 4 to 5 crops per year. The annual net income per acre in the high yielding areas of Rayala seema district was about Rs. 10,000 on an average and in less yielding areas of Telangana and Coastal Andra, it was reported to be Rs. 5,000 to Rs. 6,000.23

Chowdhary (1984), estimated the total cost of cultivation per acre of mulberry to be Rs. 4,105 in the first year and Rs. 4,307 in the second year and subsequent years. The returns were Rs. 3315 in the first year and Rs. 7398 in the second and subsequent years.24

Bhatikar (1985), worked out the investment per acre of irrigated mulberry and rearing of coccons in Karnataka and observed it to be Rs. 8,600 and it would also generate employment for 3 persons throughout the year. The net income per acre was Rs. 5,300 from sericulture, while it was Rs. 3,000 from other cash crops such as sugarcane and potato. He also reported that the income from irrigated food crops like paddy and maize to be Rs.1,500 and
Rs.2,500 per acre respectively. Thus it was clearly indicated that sericulture is more profitable compared to other crop activities.25

In a similar study in Anekal taluk of Bangalore district of Karnataka by Murtuza Khan (1985), showed that the net return per acre from seed cocoon production was Rs. 4,742 and from commercial cocoon production, it was Rs. 3,079. The gross return per rupee of investment was also more (Rs. 1.33) from seed cocoon than the commercial production. He also employed Cobb-douglas production function to study. The resource productivity and allocation efficiency of the input factors in silk cocoon production. The analysis indicated that additional use of layings and mulberry leaves for rearing of silkworms will help to increase income in both bivoltine and multivoltine cocoon production26.

Deka and Hazarika (1986), found that the gross costs per acre of mulberry garden under irrigated condition in north-east region of India was Rs. 10,500 in the first year and Rs. 4,300 in the second year. The gross returns per acre of mulberry garden was Rs. 14,000 and Rs. 20,000 during the first and second year respectively. The net returns thus accounted for Rs. 3,900 in the first year and Rs. 15,700 from second year onwards.27

Saraswathi and Srivatsava (1986), indicated that sericulture was gaining prominence in Marathwada region of Maharashtra. They reported that the bivoltine hybrid would give a cocoon yield of 48.2 Kg.’s per 100 disease free
layings. The average number of laying that can be brushed in a year was estimated to be 1,000 disease free layings with an average of 400 Kg.'s of cocoons per acre per year. They concluded that cocoon rearing would provide a gross and net income of Rs. 16,000 and 8,000 respectively per acre per annum.

Marihonnaiah (1987), studied the income and employment generation in sericulture in Kunigal taluk of Karnataka. The results showed that the total cost cocoon production was Rs. 13,548 for large, Rs. 12,980 for marginal and Rs. 12,449 for small farmers per hectare, per year with an over all average of Rs. 12,983. The average operational cost was Rs. 11,711 per hectare per year which accounted for 90.20 percent of the total cost. It was reported that the cost of labour was 43.70 percent of the operational costs, while the cost of mulberry leave was 39.20 percent. The average gross income from cocoon production was Rs.18,906 per hectare, per year and it was 6 times more than that of ragi-mixed crops. (Rs. 3,062 ). The average net income from sericulture was Rs. 5,923 and it was at least 11 times more than the net income from ragi - mixed crops. (Rs. 511).

Chandrashekar Reddy (1990), reported that the total cost of cocoons production in Hosur taluk. of TamilNadu was Rs. 11,972 per acre, per annum of which Rs. 11,206 was the operation cost and the remaining Rs. 766 was the fixed cost. He indicated that the cost of production decreased significantly with
the increase in the farm size. The average gross returns from cocoon production was Rs. 19,997 per acre, per annum and the net return was Rs. 8,025. The net return from sericulture was reported to be 2.6 times higher than that of alternative crops. (Rs. 3.082).  

Iqbal (1991), in his study found that mulberry silk production provided a net income of Rs. 15,715 per acre as against Rs. 4,056 from paddy, Rs. 3837 from jute and Rs. 1218 from an hectare of wheat under Indian conditions.  

Kumaraswamy B.R.(1993) reported that, per acre net profit from sericulture was Rs. 32,672 as against Rs. 8696 in alternative crops like paddy, Wheat and the percentage of labour cost was found to be 78:46 and 21:52 respectively.  

Jaganathan V. (1996) found that, one hectare of Paddy yields a net return of Rs. 8837, Wheat Rs. 6424, While the same land yields annually Rs. 32,700 under mulberry silk.  

II.4. SUMMARY  

To sum up, different studies have expressed varied opinion on different dimensions of socio-economic conditions of the sericulturists. Studies have suggested that if a farmer could afford a piece of land for mulberry cultivation by not affecting their regular agricultural activity, which would improve the economic position of the house holds, it in turn would lead to enhance their social status of the family in particular and rural areas in general.
To solve the acute problem of unemployment in the country, studies have suggested that sericulture is one of the alternative crops among allied activities, which can provide employment to all the family members without gender discrimination as well as hired labourers comparative to other crops. Sericulture is ideally suited to persons of all ages and provides employment all throughout the year. This could also avoid the migration of the rural folk to the urban areas in search of employment. This would help to solve the burning unemployment problem to some extent in the country.

It is pointed out that to take up sericulture initially one has to spend a little amount in order to equip all the infrastructure facilities which are required to rear silkworms, but the subsequent maintenance cost will be very minimal. In spite of all these expenditures, farmers are deriving good income from sericulture than other crops. It is therefore suggested that the authorities take necessary action to provide assistance to the new farmers to enter into new areas so that the economic position of the household will improve and in turn it can lead to better life in the society.

II.5. GAPS IN THE STUDIES

We come across very few academic studies which can throw light on the process of socio-economic change that the society is experiencing due to the expansion of sericulture activities in the predominantly agricultural countries like India. Some of the studies which are available tend to be either too general.
in their analysis of the situation or they are too narrow in their approach to provide necessary insights or clues for better understanding of the issues involved in sericulture activities. Nevertheless, there are some studies which are exceptions to this.

The above studies have not deeply examined the intensity of sericulture benefits across the different categories of farmers particularly weaker sections. These studies have not analyzed how and how much benefits various categories of sericulturist are getting and some of the issues which were not covered are listed as follows.

1) In depth analysis was not attempted in order to find out the impact of sericulture on the rural households.

2) It is also noticed that several studies have not touched the issues like why farmers are not adopting sericulture when there is a lot of scope for employment and income generation.

3) Several studies have failed in understanding the economic viability of sericulture enterprises to the farmers.

4) The efficiency of the extension staff in motivating the farmers in entering into new areas was not highlighted sufficiently by earlier studies and
5) Crop wise cost benefit analysis as to be undertaken across different size classes in different agro climatic conditions.

Therefore there is a vast scope for probing further into sericulture activity. To fill the gaps, it is proposed to take up the study on a wider basis in Tumkur district of Karnataka.

Based on these facts and views, it is clear that sericulture industry is playing a vital role in generating income and employment to the people in general. It provides a scope for an intensive study of how far sericulture activity is helps in improving the socio-economic conditions of the rural population and its development. Particularly, it gives a wider scope for examining the socio-economic conditions of weaker section in the rural population.
References


12. Murthy, "Sericulture can generate employment" Indian Silk, Central Silk Board, Bangalore. 1978 vol. 28, Page no. 36.


