CHAPTER II

REVIEW OF LITERATURE
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Sericulture is an area, which has attracted the attention of a number of researchers. The importance of this multi-dimensional industry in solving the problems of poverty and unemployment has inspired the economists, planners and scholars to think about its various aspects. The superfluity of surveys, reports, articles and scholarly works show the significance of this subject and the interest shown by various writers. There are numerous scientific and research works in agricultural aspects of mulberry, silkworm varieties and breeding technologies. Extensive works are also found on the economic and commercial aspects of sericulture. In this chapter, an attempt is made to review the available literature on this subject.

With a view to place the study in proper perspective, the important contributions in this field are analysed and to identify the gaps, the different scholarly works are classified in to six major categories namely, (1) Marketing and Demand (2) International Trade and Quality Control. (3) Cost, Returns and Pricing (4) Income and Employment (5) Credit and Financing and (6) Extension, Training and Development. Studies related to Kerala are reviewed under a separate category.
2.1. Marketing and Demand

Marketing is the most important factor, which influences the development of sericulture in any country. Timely marketing facilities and reasonable prices can encourage the sericulture activities.

D.V. Jahagirdar\textsuperscript{1} in his study pointed out the need for developing efficient marketing system for cocoons. He explained that good market support scheme is essential to protect the interests of the producers and to save them from middlemen.

The study of K.B. Ramakrishna, \textit{et al.}\textsuperscript{2} revealed that marketing is a weak link in sericulture industry in India. According to them, the cocoon growers are invariably left to the mercy of the reellers. The survey of S. Venkatagiriyappa, \textit{et al.}\textsuperscript{3} revealed that the exorbitant luggage charges, unscientific assessment of cocoons, unsatisfactory weighment and price paid by private reellers are the major problems in marketing of silk cocoons.

According to T.H. Somashekar\textsuperscript{4} the open auction system in silk exchanges has not assisted in the development of desired linkages between rearers and reellers and reellers and weavers, while such linkages are extremely important in the quality improvement. Priti Tandon\textsuperscript{5} explained about the hurdles in marketing of silk goods. The study revealed that the marketing is very complicated as the silk product passes through several intermediate agencies before it reaches the final consumer. According to Ronald Currie,\textsuperscript{6} the main features of today's market are turbulence,
uncertainty and innovation. He pointed out that the traditional image of silk has been seriously altered since the new markets for silk have opened up.

Gopal Naik\textsuperscript{7} has tried to evaluate the regulated cocoon markets of the country. He observed that there is no scientific grading in these markets as quality assessment is mostly done by visual inspection. P.G. Chengappa, \textit{et al.}\textsuperscript{8} gave an account of the silk exchanges of the country. They are of the opinion that the silk exchanges should imbibe the concept of a real produce exchange with facilities for both spot and forward sales. They stress on the need for a silk exchange, which is not subject to much controls and which prompt buyers and sellers to voluntary trade rather than compulsion.

Raveendra Mattigatti, \textit{et al.}\textsuperscript{9} have identified the marketing constraints in sericulture and revealed that there is no strong linkage among the marketing system, input supply and services. They suggest that there is a need for such facilities under one roof, which would ensure timely supply of inputs and services. S. Narasimha Reddy and H. Jayaram\textsuperscript{10} in their study found that the weaving industry has been characterised by middlemen who exploit the poor, illiterate weavers. The weavers are the weaker section of the community and they find it too hard to invest adequately in the necessary outlay, thus making them to depend largely on the master weavers for their raw material and marketing needs.

M.N. Ramesha\textsuperscript{11} feels that there is a need for systematic effort to introduce new products at regular intervals to the market. He pointed out that it is the exclusiveness of a product that attracts a buyer in the market. Therefore, the need is
for a regular system that could work for a systematic research and development in product diversification and also to assist the entrepreneurs to popularise the Indian silk goods in different markets so that they could gain better value addition and brand recognition.

According to Dr. C. Ravikumar and Prabha Sekhar\textsuperscript{12} the cocoon markets and silk exchanges of Karnataka are successful in providing a healthy competition in the market. They are of the view that the centralised cocoon markets are assuring the farmers immediate sale of their produce, ready payment to the seller and a competitive price for the produce.

The findings of R. Chandrasekhar Reddy\textsuperscript{13} reveal that the buyers and auctioning agents are playing fraudulent practices against sericulture farmers in the cocoon market. He reports the existence of secret agreements between the purchasing and auctioning authority in the market yard. G.R. Gopinath\textsuperscript{14} in his analysis on scope for large-scale farming in sericulture finds that large scale farming will assure reliable and steady supply of quality cocoons to the reelers and pave the way for a marketing tie up with buy back arrangements between the farmers and the reelers.

As far as the demand for silk is concerned, Ronald Currie\textsuperscript{15} is of the opinion that the traditional image of silk has been seriously altered since the new markets for silk have been opened up. He reports that since silk has lost its exclusive aspect, it has also lost much of its unique appeal. The findings of H.V. Henle\textsuperscript{16} revealed that demand for silk and silk products is not easy to quantify and very aggregated
volume data tend to become blurred in their significance and therefore, less meaningful. Value figures are even less apt to describe the true composition of demand. For to the amounts of raw silk offered, demanded and then traded must be added at least four or five other categories of products between which a shift of demand is generally not or not easily possible for various technical and commercial reasons.

Gopal Naik\textsuperscript{17} explains that the growth of silk industry in the long run depends on the growth in the demand in the consuming markets as well as how efficiently these demands are transferred at various levels within the industry, i.e. demand from silk fabric to demand for raw silk and cocoon. He points out that growth in demand is influenced by some controllable variables such as marketing mix variables and external variables such as growth in purchasing power.

P. Joy Oommen\textsuperscript{18} is of the opinion that driven by a strong and tradition-bound home demand, Indian silk industry has been to a large extent insulated against international competition and cushioned against low quality. According to K.S. Arunkumar, \textit{et al.}\textsuperscript{19} the demand for raw silk has been gradually expanding. They revealed that with the declining trend noticed in Republic of Korea and steady trend in Brazil and the withdrawal of Japan from the world silk market, the persisting domestic demand in various countries will have to be met by India and the Republic of China. K. Periasamy and S.Radhakrishnan\textsuperscript{20} are of the opinion that the overall world demand for silk will remain far above the actual supplies.
Jiro Obitsu reveals that the domestic consumption has been ahead of raw silk production in the country as the demand exceeded local production capabilities. He points out that demand for silk cannot be satisfied for many years to come. G. Thimmaiah and C.S. Nagabhushna are of the opinion that it would be better if India launches a program for promoting the sale of Indian silk goods within the country for which there is great potential. M. Madan Mohan Rao is of the view that simply increasing the production of cocoons is not enough. Providing marketing facilities and thereby increasing the demand for the cocoons is extremely essential for sustaining the industry.

2.2. International Trade and Quality Control

International trade in silk products takes place both at the primary and secondary levels like the cocoon, raw silk, thrown silk yarn, waste silk, spun and noil silk and fabrics, made ups, garments, carpets and furnishings. India is an exporter of finished garments and at the same time an importer of raw silk.

Ronald Currie is of the opinion that there is a distinct swing away in importing countries from imports of raw silk towards the imports of finished goods. He explains that the import statistics of major silk importing countries like Unites States, Europe and Japan shows a tendency of increased imports of silk fabrics and made-ups in place of raw silk. Rajive Aggarwal is of the opinion that there is good prospects for Indian silk exports when the indigenous mulberry raw silk is of excellent quality or when the raw silk imported at optimum price or when all wheels of export production and marketing are in excellent condition.
Mamta Vyas26 has made an attempt to analyse the activities of Indian Silk Export Promotion Council, which has been established to undertake export promotion measures for silk goods. The author recommends for incentives and financial support to small exporters and suggests making efforts to explore new markets.

P.G. Chengappa, et al.27 observed that the Indian silk industry has to depend on imported yarn to meet the requirements of the high quality export sector. They reveal that this situation will continue since there is a strong demand for quality silk not only for export of finished products but also for the domestic fabrics. They suggested integration of silk industry to the global market so that benefits of international markets are made available to our silk industry. The findings of the study of Dr. I. Satya Sundaram28 reveal that there is a threat from Chinese silk to the Indian market. He reports that the coarse silk produced in India is facing severe competition from the superior quality Chinese Silk that is suitable for making Kanjeevaram and Dharmavaram Sarees.

Dr. C. Ravikumar and Prabha Sekhar29 identified the invariably inferior quality of Indian silk products as the main bottleneck in capturing the world market. They warn that unless an effort is made to improve the quality of raw silk and the fabric woven from them, India will not be in a position to boast itself as a sericultural country, which would contribute much to the world sericulture. According to Urs Heierli30, despite the predominance of China there is scope for an increase in
production in other countries. He concluded that, it is not easy to compete with China, because of their high production standards and low prices.

Dinesh Sharma, IAS\textsuperscript{31} has made an attempt to analyse the new challenges in silk exports. He came to the conclusion that the Indian silk exports continue to remain to low level due to lack of both knowledge as well as competence to meet the demands of the market. The study of C.B. Jaganatha Rao\textsuperscript{32} reveals that though there is a considerable increase in the growth rate of the total value of silk exports, there is no corresponding increase in the growth rate of the quantity of silk product exports. According to him, under the liberalised scenario, the motto of silk exporters from India should be producing for exports rather than exporting what we produce.

The survey of Dr. V. Vigneshwara\textsuperscript{33} points out that the rising demand for silk within our country has reduced the quantum of surplus available for exports. He confirms the fact that this industry offers a vast scope for increasing production so as to meet domestic demand fully and also to earn valuable foreign exchange through exports. Dr. Neeru Saluja\textsuperscript{34} explains that the essence of silk pricing policy in the international market is the realisation that the selling price is not a function of demand and supply but a function of salesmanship. It is well pointed out that the price that silk textiles fetch is dependent wholly on how well they are marketed.

Quality is an important concern as far as silk products are considered. Most of the silk produced in India are of inferior quality as the farmers rear multi-voltine varieties of silkworms. R.K. Datta\textsuperscript{35} reports that India has to produce a large quantity of bivoltine cocoons and reel out the quality silk using modern filatures. He
suggests an all out national effort towards the production of uniform quality bivoltine silk in large quantity. K.Thangavelu\textsuperscript{36} is of the opinion that the quality of silkworm races is by far the most important element of sericulture technology and because of this, efforts should actually be devoted to the breeding of better races.

T.N. Sonwalkar\textsuperscript{37} reveals in his study that the response for much needed technology up gradation is rather slow for various reasons including the high investment cost. He stresses on the immediate need to adopt appropriate reeling technology that suit the quality for cocoons to derive the best. According to Gopal Naik\textsuperscript{38}, technology and process adopted in the Indian Silk Industry has been traditional at all stages resulting in lower productivity and poor quality products. He identifies the decentralised nature of the industry as the major hurdle in improving quality.

P.G. Chengappa \textit{et al.}\textsuperscript{39} points out that the quest for high quality fabric needed for domestic as well as export market would begin with the farmer who rears the silkworm to produce the silk cocoons. Therefore, the support system for the farmers should be strengthened to help the production of high quality bivoltine cocoons on a regular basis. He adds that quality should be built into an organisation and its products by being competitive by eliminating consternation, by managing costs and most of all by caring passionately for the customer. Raveendra Mattigatti \textit{et al.}\textsuperscript{40} are also of the opinion that the quality of silk depends upon the cocoon quality and processing technology. According to G. Sreerama Reddy\textsuperscript{41} the quality of silk in India
is low due to the continuous dependence on multivoltine breeds of silkworm and also due to the organisational lacuna.

R.K. Datta et al. identify the challenges before silk industry as productivity and quality. M.N. Ramesha says that with advanced technologies it is time for all the agencies to join hands for a collective and planned effort to produce quality silk in bulk that meets export needs. T.N. Sonwalkar explains why quality control has not been effectively adopted in the Indian silk industry. He says that the industry is small and cottage based and a major quantity of raw silk produced is utilised by the handloom weaving sector. D.S. Srikantadhyya suggests that there is the need for revamping filature units without which their working cannot be improved and also the much needed increase in the production of raw silk of superior quality cannot be achieved.

2.3. Cost, Returns and Pricing

B. Rajesh and Ismath Afshan present a comparative study on the cost structure and subsequent returns with regard to sericulture and cultivation of some other crops. The study revealed that the cost benefit ratio is more in sericulture, as the cost of production is low and the number of crops realised in sericulture is more. The study of K.B. Ramakrishna, et al. revealed that in the total cost of production, mulberry leaves had the major share. Out of the fixed costs, depreciation on rearing room and equipment was the major item followed by interest on fixed cost.

A study conducted by S.S. Misra proved that the cost of producing mulberry has a direct impact on the cost of producing cocoon, as nearly 60 per cent of the total
cost of production of cocoons goes to the production of mulberry leaves. Mohamed Khaiser Ahmed\textsuperscript{49} in his study proved that the major cost item in silk reeling is cocoon which account for over 90 per cent of the total cost in all the processes. S. Lakshmanan, \textit{et al.}\textsuperscript{50} report that there is inverse relationship between farm size and cost of production. The study brought out the fact that the smaller landholders had incurred higher cost in producing mulberry and cocoon than that of higher landholding groups. It was proved that the realisation of low return was due to higher investment in factors of production. Abdul Aziz and Vijayakumar Shetty\textsuperscript{51} are of the view that research is required to identify areas of low efficiency in materials used and to evolve appropriate policy parameters to make the best use of the materials. The study of T.R. Somashekar\textsuperscript{52} reveals that a control of waste at various stages of the operations of reeling and weaving brings in a lot of savings since silk is a very expensive material.

T.N. Sonwalkar\textsuperscript{53} points out that in silk reeling, cocoon cost comes to 80\% and therefore, to get reasonable returns, the reeling units should utilise the silk waste also. According to K.V. Patel\textsuperscript{54} the cost of family labour, which is often excluded from the calculation of total cost, should be included in the farm profit, while calculating the income of the family. G.R. Gopinath\textsuperscript{55} is of the opinion that if large scale farming is introduced in sericulture along with better rearing practices, it is possible to save 80 percent of the labour costs. According to Dr. G. Rangaswami, \textit{et al.}\textsuperscript{56} the growth of sericulture on an industrial scale in a country is decided by its cost of production. Dr. Krishnaswami, \textit{et al.}\textsuperscript{57} says that though sericulture is practiced mostly on small or medium scale, the remunerative returns from it has opened the
possibilities of establishing the industry on a plantation scale.

Price is an important factor in sericulture, which controls the production of cocoons, yarns and cloths. L.V. Nagarajan expresses his view that the economic theory on the relationship between demand and supply is applicable to sericulture and silk industry also. He argues that sericulture spread, quality of cocoons, and demand in the market are clearly and directly linked to prices in the different segments of sericulture industry. Shridhar Patali, et al. are of the opinion that due to high unit value of silk products, it is essential to develop low cost products by mixing it with cheaper quality yarns, which will be within the reach of larger sections of the population.

According to N. Nagaraj, et al. the price fluctuations for cocoons is not much when compared to other commercial crops, since the sericulture market is well organised and integrated and functions fairly efficiently. S. Lakshmanan and R.G. Geethadevi point out that incentive price and minimum support price policies should be implemented in sericulture also so that farmers could be motivated in adopting new technologies at a faster rate.

B. Trudel explains that the sericulture development is possible only if the prices of raw silk are kept reasonably high. G.S. Yadav, et al. are of the opinion that apart from various economic aspects, the price factor have a definite influence on the existing unbalanced demand and supply position of silk yarn. T.N. Sonwalkar says that prices of cocoon and raw silk should be based on quality, which would determine the minimum floor price of cocoon and raw silk. K.S. Menon, et al.
report that the absence of quality based pricing makes the fluctuation in both cocoon and raw silk prices. V. Balasubramanian\textsuperscript{66} is of the opinion that though silk exchange is established to relieve the reelers from the mercy of the merchants, in practice it has been degenerated and instead of open competition, the merchants still negotiate the price privately.

2.4. Income and Employment

Sericulture is a highly labour intensive enterprise, which provides regular income and employment opportunities to the rural population. A comparative study made by G. Sandhya Rani\textsuperscript{67} reveals that the generation of man-days on one acre of mulberry garden is three times more than that of paddy, nearly four times than that of groundnut and five times than that of ragi. H.V. Henle\textsuperscript{68} is of the opinion that a vibrant growing sericulture sector provides employment in great quantities, hence income to the rural population and feeds the domestic transformation industry. Trilok N. Hajare, \textit{et al.}\textsuperscript{69} expressed their opinion that sericulture being a low investment and high return oriented agro-based activity, suits well in ensuring better avenues of regular earning to the small and marginal farmers with limited resources.

The study of A.R. Rajapurohit and K.V. Govindaraju\textsuperscript{70} establishes that sericulture is an enterprise when integrated with cereal and bovine enterprises through input output linkages, provides large scale employment and yields relatively high income. The findings of R. Chandra Shekhar Reddy, \textit{et al.}\textsuperscript{71} reveal
that sericulture industry brings about rural economic development by providing gainful employment to family and also other wage earners of rural population not just by increasing the wages abnormally, but by providing employment to large number of persons with a moderate increase in wages over the years.

Dr. N. Kamalamma, *et al.* identify sericulture as a viable rural industry mainly because it provides remunerative employment to families and labour throughout the year and also ensures periodical income even with small land holdings. H.G. Hanumappa and D. Rajasekhar are of the view that sericulture is the most remunerative when compared to other crop activities in terms of income generation. According to Ismath Afshan the economic gains of Sericulture industry are further enhanced due to the wide demand that the silk waste commands and the price it fetches.

Dr. R.K. Datta and Dr. C. Ravikumar identified sericulture as a highly remunerative crop with minimum investment and rich dividends. According to K.V. Benchamin mulberry sericulture is a rural based family enterprise, generating high levels of employment and a secure, stable income, at regular intervals, with comparatively low investment and short gestation. The study of S.Gregory revealed that the recognition of women's labour is more pronounced in sericulture than in non-sericulture households.

According to G. Parameshwara sericulture provides an ample opportunity for increased employability of human resource and can effectively check migration
of people to urban areas. The study of K. Vasanthis shows that sericulture generates
direct and indirect employment in various ways.

The study of Mrs. Prabhashekhar and Dr. C. Ravikumaresh shows that
sericulture generates high employment and income per unit of land area. S.S. Misrais of the opinion that the sericulture industry provides opportunities for earning
additional income during off-season of crops. The study of H.G. Hanumappa and S.
Erapparevealed that increased number of cottage basin units would
correspondingly provide increased employment opportunities and hence there is no
need of fear that the replacement of charka technology by cottage basin technology
would result in depriving employment to those who are already engaged in these
activities. A study conducted by G.N. Nagaraja, et al.showed that the existing
sericulture based farming system followed by small farmers are less efficient than
farming system developed through normative farm plants that exhibit potential or
higher income and employment.

2.5. Credit and Financing

Adequate and timely credit from a suitable agency is a precondition for the
sustained growth of sericulture. According to M.G. Kerutagi and H.G. Sankara
Murthys there is a great scope for extending financial facilities to encourage cocoon
production through institutional agencies.

The study of Ravindra Mattigatti, et al.revealed that, when compared to the
income derived from sericulture, the percentage of contribution of loan to the funds
of the farm is very low. Jacob Thomas, et al. observed that there is a big gap
between the requirement of credit and actual disbursement. H.A. Nagaraja Rao\textsuperscript{87} has made an attempt to analyse the loans given by various agencies and suggested adequate credit flow to meet the working capital requirements.

According to Dr. V. Vigneshwara\textsuperscript{88} to encourage production internally, a comprehensive programme of financing the various sectors should be evolved. He suggested a credit plan based on the loan requirement of the sectors and availability of resource with financing agencies.

The study of K. Ramesha, et al.\textsuperscript{89} pointed out that in order to evolve a comprehensive policy on credit related aspects, it is imperative to have a reliable data base on vital aspects of sericulture as also the flow of credit from various sources. H.A. Nagaraja Rao\textsuperscript{90} suggested that the credit flow should be free enough to meet the requirements and the interest on loans should be very marginal to support the rural artisans in the country.

K.V. Patel\textsuperscript{91} expressed his view that the cost intensive nature of sericulture and its suitability for small producer indicate a clear-cut message for the involvement of the credit agencies. The study of H.G. Hanumappa and D. Rajasekhar\textsuperscript{92} concluded that the loans from banks are neither timely nor adequate and the complicated procedures make bank credit costly in terms of both time and money. M.N. Ramesha\textsuperscript{93} expressed his concern over the slow inflow of credit and the procedural constraints in availing credit. J. Acharya\textsuperscript{94} reported that the credit must flow into the system; it must be made use of in a productive way and must
flow back as repayment so that credit can be renewed and made to operate as a sustainable system.

2.6. Extension, Training and Development

Sericulture comprises of a number of integrated activities. This creates strong needs for forward and backward linkages. Technical training followed by periodic on-farm guidance and trouble-shooting are, therefore, essential for the progress of the industry.

According to K. Kesavacharyulu, et al. sericulture development depends not only on the technology generation but also largely on dissemination of technology into sericulture farming community. They are of the opinion that extension field workers play a vital role as a link in the process of technology transfer and in motivation of farmers for the adoption of new technologies. S.B. Dandin, et al. are also of the same view that dissemination of technology is more vital than its development, as its success lies in effective adoption and use by the target user. Y.V. Ramanujaneyulu, et al. are of the opinion that the level of understanding and adoption of a technology at farmers' level will have a direct bearing on the quality and yield of the cocoon crop.

S.K. Panda observes that the introduction of sericulture in new areas calls for diversion of land being used for other crops to sericulture. He says that with required planning and support, sericulture can be introduced in new areas and
would play an important role in the process of social and economic development of the backward regions of our country.

Dr. A.K. Dhote is of the view that extension and management play an important role in the development of sericulture activities. He suggested that farmers should be educated regarding the management of mulberry plantations and silkworm rearing while the reelers should be educated in the management of reeling technology. According to Manjeet S. Jolly, tradition of sericulture and availability of handloom weaving play a significant role to develop sericulture in a country. It is suggested that, there is a need to develop a mechanism to consolidate the efforts of international agencies, so that the developing countries can get the maximum benefit from their inputs.

Ravindra Mattigatti, et al. called for the introduction of co-operative societies in sericulture for higher productivity and well being of silk men in India. G. Sreerama Reddy demanded to re-examine our strategies and priorities both in the sericultural organisation and in the development of new technologies. N.G. Hegde and G.G. Sohani pointed out that Non-Government Organisations (NGOs) with their flexible and people centered extension style have an important role in providing infra-structural facilities and structural services to farmers. S.S. Sinha suggested that NGOs should be brought into the mainstream of development.

A.L. Muthaiah is of the view that our silk cannot survive without generic promotion much longer. K. Vijayan, et al. observed that, since the growth pattern of mulberry varies distinctly with environment, adoption of temperate technique in
toto in tropical conditions may not help many of the field problems that Indian mulberry breeds face at present. They suggest a new progeny assessment of seedlings.

The study of Dr. N. Kamalamma, et al.\textsuperscript{107} revealed that there is the need to evolve appropriate technologies for helping the farmers to perform difficult tasks with ease and comfort, and to increase the productivity. B.K. Gupta and Y.K. Gupta\textsuperscript{108} observed that adoption of improved technologies and package of practices and methods as recommended by the research institutes for pursuing sericulture varies from farmers to farmers due to their heterogeneous compositions. Mohammed Moiruuddin\textsuperscript{109} is of the opinion that the responsibilities that different promotional agencies have to shoulder to save the industry from extinction can be broadly categorized as those to be undertaken by government and those to be undertaken by research and other non-governmental agencies.

An account of the impact of the training programme for women presented by R.G. Geethadevi, et al.\textsuperscript{110} indicates that skill teaching and training brought a lot of changes in the level of technical knowledge of staff and women sericulturists. The study of Lakshmi Raju, D. and Nataraju, M.S.\textsuperscript{111} showed that more number of educational activities involving training have to be conducted in rural areas. The attempt made by Dayanand Bidari and M. Rajasekhar Reddy\textsuperscript{112} to analyse the plans for increasing participation of women in sericulture, revealed that, a number of operational problems affect the proper implementation of the plans.
According to P.R. Koundinya, et al.\textsuperscript{113} to adopt the new technologies for better results, all farmers should get themselves equipped with infrastructure facilities. B.L. Rame Gowda, et al.\textsuperscript{114} are of the opinion that equipping sericulture farmers with scientific knowledge, favourable attitude, required skills and motivation to adopt recommended sericulture technology is the foundation on which rural development can be initiated in a planned manner. The study of Babulal, et al.\textsuperscript{115} showed that transfer of technology certainly helps to minimize the yield gap between laboratory and field yield. Urs Heierli\textsuperscript{116} remarked that extension services to the farmer are indeed areas for government involvement, and there is little doubt that the quality and usefulness of extension services is determinant for the quality of the silk production.

According to R. Dwarakinath\textsuperscript{117} sericulture extension is to introduce locally useful new technology to a village and to get its rapid diffusion. He suggested that learning from experience is a critical input in progressively improving the effectiveness of the extension system. S.S. Sinha and M.K. Jha\textsuperscript{118} also recognized the same idea. S.B. Dandin\textsuperscript{119} called for a National Sericulture Policy and separate policies for leading States in line with the Centre and defines their development programmes. Sheela Bhide\textsuperscript{120} suggested the organisation of productivity clubs of farmers under each Technical Service Centres, which would help faster dissemination of information in new technologies and help focus on productivity parameters. Gerard Chavancy\textsuperscript{121} is of the view that the technologies already exist but the transfer of these technologies is posing problems. According to him, there are learning and implementing problems at the processing stage of silk. Saswati
Mookherjee\textsuperscript{122} is of the opinion that introduction of sericulture in new areas is likely to face multiple constraints covering geographical, economic, cultural, political and administrative mechanisms.

2.7. Studies Related to Kerala

The study of M.D. Baby\textsuperscript{123} is based on the cost, returns and employment aspects of mulberry cultivation and silkworm rearing. His findings revealed that sericulture has become most suitable to Kerala in its geographical, climatic and economic conditions. It is pointed out that sericulture can solve the unemployment and economic problems in Kerala to a great extent. A study made by Jalajakumari, L.\textsuperscript{124} concluded that the sericulture activity in the State is highly labour intensive and generating reasonable rate of income to rural farmers.

A case study of Jayan, K.V. and Babu Ambat\textsuperscript{125} revealed that the quality and productivity of sericulture in Kerala are far below than the standard. They isolated some problems like inadequate marketing facility, non-availability of quality seeds and lack of financial assistance. A comparative study of sericulture in Kerala and Karnataka conducted by Jothish Kumar, K.V. and Jayan, K.V.\textsuperscript{126} found that the main drawback of Kerala cocoon is the poor reelability, which is responsible for the lower price fetched for Kerala cocoons.

Dr. K. Sasidharan Pillai, R. Krishnakumar and A.S. Anilkumar\textsuperscript{127} observed that the expenses of the cocoon production are very high in Kerala when compared to other States. The main reason they identified is the excessive labour costs in the State. K. Sasidharan Pillai, \textit{et al.}\textsuperscript{128} revealed that sericulture should be practiced in
Kerala with minimum paid labour and maximum family labour since higher labour rates are prevailing in the State. T.K. Sunilkumar\textsuperscript{129} expressed his view that mulberry can be cultivated successfully in the State as an intercrop in the coconut gardens. According to Tomy Philip,\textsuperscript{130} there is a potential to propagate sericulture in the State as an avocation and to develop it as a remunerative industry. He identified problems like high labour cost, lack of land for cultivation and problems of marketing. The study of P.V. Susamma and P.S. Geethakutty\textsuperscript{131} observed that subsidy orientation of the farmers, inadequate marketing facilities and lack of assured market price constitute serious drawbacks to the sericulture enterprise in Kerala.

The survey of R.S. Maruti and Suresh Balakrishnan\textsuperscript{132} proved that the income per acre was considerably low in sericulture when compared to agriculture and a major portion of sericulturists are not willing to expand the mulberry acreage. The study of K.S. Menon, \textit{et al.}\textsuperscript{133} revealed that the farmers in Kerala have not taken up sericulture as an important livelihood occupation and could not realize the economic importance of the venture. They are of the view that the extension activities must be reoriented to project sericulture as an important economic activity. The study of P. Shaheena\textsuperscript{134} revealed that the efforts of the extension agencies can come to reality only when there is an assured market and reasonable prices for cocoons.

2.8. Conclusion

From the forgone review of literature, it can be understood that a number of researchers have made their contributions on various aspects of development and
functioning of the sericulture and silk industry. The scholars generally agree on the fact that adequate backward and forward linkages, proper training of sericulturists and effective technology dissemination are inevitable for the healthy growth of the industry. But at the same time, studies on the development of the sericulture industry in association with the activities of a development agency were not found in the above readings. Therefore, the present study about the sericulture industry of Kerala based on the activities of SERIFED, which is the sericulture development agency for Kerala, seems to be extremely important and appropriate.

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