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Technological advancement and its adoption: A booster for sericulture development and expansion in Karnataka

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Abstract

Sericulture is a growing activity in the primary sector which aims more income to the farmers. This paper entitles an agro based artisanal industry, Sericulture which has proved its potential in raising sustainable income and employment in the rural sector of both traditional and non-traditional states of India. Adoption of technology becomes a trend in the primary sector from few years. The study is concentrating on the impact of technology on sericulture in selected area. Sericulture is an agro industrial activity aiming to produce silk through rearing of silkworm. It involves the raising of food plants for silkworm, rearing of silkworm for production of cocoons, reeling and spinning of cocoons for production of yarn for value added benefits such as processing and weaving. The knowledge of technology has found to have greater impact on improving the productivity and production in terms of agriculture as well as its allied activities. This study finds out significant positive impact of full and partial knowledge about advanced technology and its adoption on the development of the sector. The climatic conditions of Karnataka favour sericulture throughout year. Hence, there will be regular crops throughout the year, farmers take up to 12 crops in a year. The government of India initiated various programs to promote sericulture in the country. Where sericulture took a rapid stride towards progress by emerging as one of the most economically viable small scale agro based Industry.

Keywords: Adoption level, improved technology, sericulture, level of employment

Introduction

Sericulture is one of the promising enterprises supporting husbandry which may substantiate the income of the small and large farmers. Sericulture is an agro grounded labour ferocious assiduity furnishing economic employment substantially for pastoral people. Sericulture enterprise in its summation is along chain assiduity form mulberry cultivation to fabric timber. Sericulture in considered as a boon to numerous growers in the failure prone areas in southern part of Karnataka like Ramanagara sections when compared to food and other marketable crops. Being pastoral grounded labour ferocious assiduity sericulture is immaculately suited for perfecting the social and profitable norms of the pastoral poor.

Sericulture is an agro grounded provides a non-stop income throughout the time. Sericulture serves as an important tool for pastoral reconstruction, serving the weaker sections of the society. Sericulture provides not only journal return within short period of time but also assures own family employment openings around the time. A number of new technologies have been made by the scientists of exploration institutes which or boon for the development of sericulture industry. Unless all these inventions reach the field the development would not takes place. By realising the need of extension conditioning to produce mindfulness on the new inventions to the growers, extension conditioning is being conducted regularly by the Seri extensions labour force. Since knowledge on the bettered Seri ways and their adaptation or told by colour full factors like education, profitable conditions of the growers the study was under taken to know the impact of education and knowledge of advanced practices on the adaptation of innovative Seri technologies in the study area of Karnataka

Sericulture plays a vital part in development of pastoral frugality in India because of high employment acquainted. Low capital ferocious and lucrative nature of the product that churns out value added products of profitable significance.

Sericulture helps or frugality and induce advanced income and employment. It is rehearsed a wide range of agro climatic region like timbers, hilly areas and plans. In fact the recent technology advancements have made is possible to exercise it is on a ferocious scale. Substantially due to increased gains attained from it when compared to utmost of the crops and enterprises.

The climatic conditions of Karnataka favour sericulture throughout the time. Hence there will be regular crops throughout the time. The government of India initiated colourful programs to promote sericulture in the country. Where sericulture took a rapid fire stride towards progress by arising as one of the most economically feasible small scale agro grounded assiduity

Sericulture in an agro grounded assiduity it involves re assign of silkworms of the product of raw silk. Which is the yarn attained out of cocoons gauge by certain species of insects? The major conditioning of sericulture comprises of food factory civilisation to feed the silkworm which spin silk cocoons and reeling for value added benefits similar as processing and weaving

The parentage and raising of silkworms for the product of silk a planter undertaking sericulture conditioning is called as sericulture. Sericulture provides an excellent and unique occasion for socio-profitable progress of developing countries. It's well known as a largely employment acquainted and low capital investment assiduity. Sericulture is a livelihood exertion that goes round and provides lucrative income to growers. This sector has low gravity, high returns and it's a women friendly occupation. Sericulture is ideal program for weaker sections of the society. It ensures yearly income to Seri culturists as one crop of silkworm can be reared and cocoons are produced within 25 to 27 and the growers can directly vend them at the government cocoon requests and get the plucart directly on the same day without any detention

Sericulture plays an important part in upliftment of the socio profitable life of Indian pastoral folk. Sericulture industry is the source of livelihood and provides employment to roughly 7.56 million persons in pastoral and semi civic areas in India. Of these a sizable number of workers belong to economically weaker section of the society. The growth in different area of silk assiduity in the once many times isn't simply due to vertical expansion but also a perpendicular enhancement in productivity. Low capital investment and high employment eventuality. Quick and high returns made sericulture a unique exertion. It bridges husbandry and assiduity at the same time. Its unique in the sense that from ranch to fabric, the wisdom of botany, zoology, physics chemistry and engineering are all applied. Art, craft, creativity and aesthetics are added to these in equal measures. The end product enjoys place of consummate amongst all the fabrics. Although its ironical that the planter who produces the introductory material can hardly go the luxury of the end product. Its grounded exertion feeding to the generally civic requirements. Its unlike other agrarian yield because it enjoys a decoration by way of quick returns to the growers and a favourable cost- benefit rate. Silk enjoys prominent place in global request, which is apparent from the increase of import of silk goods time by time. Sericulture being a labour ferocious and cost effective exertion has made the policy makers, directors and scientists to explore and vulgarize the sericulture conditioning throughout the county in order to raise the per capita income

India is that the second largest silk producing country within the world, next only to china, out of 5.76 lakh number of town lets in India, Sericulture is rehearsed in any than 528 town lets synthetic filaments have been dominating the request even since nylon was commercially produced in United states of America in 1937. But still silk has its own place in the cloth marketing. Among all the cloth filaments silk occupies a top place for the characters like wimpiness, fineness, luster, colour capability and fineness. It has good draping quality also. Hence, silk is aptly called as the queen of filaments and queen of fabrics. "Silk has been immingled with the life and culture of the Indians. India has a rich and complex history in silk product and its silk trade dates back to 15th century. India's traditional and culture bound domestic request and an amazing diversity of silk garments that reflect geographic particularity has helped the country to achieve a commanding position in silk assiduity. India has the unique distinction of being the only country producing all the five given marketable silks, videlicet, mulberry, tropical tasar, oak tasar, eri and muga, of which muga with its golden yellow shimmer is unique and appanage of India. Haracters like wimpiness, fineness, luster, color capability and fineness. It has good draping quality also. Hence, silk is aptly called as the queen of fibres and queen of fabrics

Objectives of the study

- To examine the effect of technology used in the cultivation by considering certain aspects that are related to the silk worm technologies and the output that will get from the sericulture.
- To analyse the relationship between the Technology and the productivity of the Sericulture in study area
- To find out the specific reasons behind non adoption or partial adoption of improved technology by the sericulture farmers

Scope of the study

Sericulture has attained a significant growth in the past four decades in India. The growth rate of raw silk production reduced in the later part of the last decade due to the reduction in mulberry area, but still there is an improvement in the silk production due to increased productivity.

The study is mainly concentrating on the Sericulture Production Technologies by the farmers in their cultivation of mulberry by considering the cost and the total output. In the present scenario Technology plays an important in all the sectors of the economy in this regard the study is focusing on the how Technology plays an important role in the productivity of the Sericulture. The study is conducted in Kanakapura Taluk, Ramanagara District of Karnataka which has considered being one of the leading silk producer places.

Importance of the study

Sericulture is considered to be one of the allied activities in the cultivation sector and it is said to be a growing activity. In the present context practice of Sericulture has undergone many Technical changes like in other cultivation; the most importantly the adoption of Technology. In the present days, adoption of Technology has also become a trend in the primary sector from few years. Here, the study is concentrating on the Sericulture Production Technologies adopted by the farmers in selected area i.e. Kanakapura Taluk of Ramanagara District. Hence, it is necessary to

understand whether the modern Technology is better than traditional Technology. This is because in Sericulture some farmers follow the modern Technology just to earn more productivity or yield and some are still following the traditional method. The study tries to find out which method of Technology which gives a higher yield in Sericulture.

Methodology

The study was proposed to be conducted in Ramanagara district of Karnataka, which is a non-traditional Indian state in silk production. In this primary data, 5 villages were chosen from the district using stratified random sampling method. From every chosen village 10 respondents were selected using random sampling method.

Both primary and secondary data were used for deducing the final outcomes of the present research paper. In primary survey, data was collected using 'Interview schedule' in order understand the extent of knowledge and adoption level of farmers.

Simple linear regression method was used to find the key reasons for not adopting the advanced technologies by sericulture farmers. The questionnaire is structured with the help of statistical tools like mean and percentage method was used for analysing the data.

In assessing the level of implemented technology, following factors are taken into consideration i.e., yielding varieties, paired row system, compost application, irrigation management, intercropping system, training, control methods for mulberry cultivation, disease management and time management for cocoon harvesting were taken into consideration in detecting the level of technology

Research gap

Received literature along with the above theories and supported articles indicates the widespread use of Technology in Sericulture where they all concentrated on the socio economic factors, the constraints that has involved in the adoption of Technology and other issues which have mentioned in the above research issues but they didn't raised the issue of productivity, cost and benefits that has involved in the cultivation of mulberry cultivation. Further variables related to improved technology for mulberry cultivation and silkworm rearing has added.

Review of Literature

Review of related literature literally means reviewing already acquired knowledge in a detailed and completely connected way. It is a summary in which, various truths intensively studied are seen as an organised whole, accurately related and well unified researcher takes the advantage of the past as a result of constant human endeavour.

Tippawan Limunggura, *et al.* (2007) ^[10] the paper entitled on "Sericulture Technology of Farmer Network under Community Reeling Factory". Community reeling has been established to solve the problem of reeling labours and improve the quality of Thai hybrid silk yarn in weaving industry. To find the fact of farmer network's Sericulture technology under community reeling factory is important to increase the chances of successful management.

Masaaki Yamada. *et al.* (2015) ^[11] the paper entitled on "Transfer and Localization of Sericulture Technology for Redeveloping Silk Industry in Central Asia-An integrated Effort of Academic Research and Extension-". Tokyo

University of Agriculture and Technology has been collaborating with the Uzbek Ministry of Agriculture and Water Resources and the Uzbek Research Institute of Sericulture on two rural development projects in the Republic of Uzbekistan. This cooperative effort is sponsored by the Japan International Cooperation Agency.

Sivapatham Sivakumar, *et al.* (2015) ^[12] the paper entitled on "Sericulture Scenario in Sri Lanka – a re-emerging Industry for Poverty Alleviation in Sri Lanka". Sericulture is an art of rearing silkworm from the production of silk and bi product. Sericulture as a cottage industry has flourished in many countries. China and India contributes more than 60 percent of world's annual production of silk. Sericulture has a major role in the employment generation for the rural people. The study has been undertaken to analysis of re – emerging of sericulture industry for poverty alleviation in Sri Lanka.

Eswarappa Kasi, (2013) ^[13] the paper entitled on "Role of Women in Sericulture and Community Development: A Study from a South Indian Village". In any discourse on sociology and anthropology, one fact that clearly emerges is that women can generally be trusted to perform their duties with utmost care and attention. This is more so in the case of agriculture and allied activities. No wonder women are playing a very important role in the sericulture industry. Their qualities like maternal instincts and loving care of those under their charge prove to be very helpful in the successful breeding of silk worms.

Mr. R Ranjith Kumar, *et al.* (2019) ^[14] the paper entitled on "Automatic Feeder for Sericulture". Sericulture, or silk farming, is the cultivation of silkworms to produce silk. Sericulture has become an important cottage industry in countries like Brazil, China, France, India, Italy, Japan, Korea, and Russia. Today, China and India are the two main producers with more than 60 percent of the world's annual production. The major hurdle in this field is shortage of manpower. From the survey it is absorbed that the most time-consuming process in sericulture is feeding of worms with mulberry leaves. As the feeding system for sericulture is concerned, the technologies available in market are of no match to feed the worms efficiently. This project "Automatic -Feeder for Sericulture" aims to provide the solution for the existing problem.

P Kumaresan, *et al.* (2005) ^[15] the paper entitled on "Productivity and Profitability in Rainfed Sericulture – A Study in the District of Chamaraja Nagar in Karnataka". The resources-use pattern and profitability of dry land Sericulture operations have been analysed. The study has been conducted with the information collected by interview method from randomly selected 67 rainfed-sericulture farmers in the Chamaraja Nagar district of Karnataka. It has been revealed that the cash inputs such as chemical fertilizers and disinfectant chemicals are used less than the recommended quantities, whereas labour is used in excess.

Data analysis

The study based on certain variables fully and partially and no knowledge level for improved technologies. 60 questionnaire were distributed among the respondents and 50 questionnaires were accepted for analysis. hence, the sample size of this survey is 50 sericulture farmers.

The study indicate a large share of farmers (45%) have partial knowledge about technological advancement. while 50% respondents have partial knowledge about management

and irrigation. the study also finds 52% of farmers having no knowledge about pest and disease control method, which is considered to be an important aspect for protecting mulberry plant and thereby raising production and income which would improve the numbers of Seri culturist farmers to expand sericulture as a subsidiary business.

Findings and Suggestions

Mulberry cultivation: The study indicate that 42 percent of the respondents have fully adopted vermi composting as a good source of nutrition for soil which would improve the production of Mulberry. Then, 40percent of the respondents have adopted technologies for intercropping framework system. Both these activities are related with each other because vermicompost helps the land to be more fertile and thus provides a base for intercropping of crops. This technology adoption helps to generate more remuneration to the farmers in the survey region. In partial adoption level of technology parameter, the highest number of respondents who partially adopted fertilizer complication as per the environmental condition is 60% followed by 50 percent of the respondents who partially adopted high yielding varieties according to condition. Again 44 percent of the respondents have not at all adopted proper irrigation management as well as effective pest and disease control techniques which are the essential aspects for expansion of sericulture.

Silkworm rearing: The result for adoption of rearing technologies is that 32 percent has adopted the technology of disinfection of rearing appliances and rearing house and also for cocoon harvesting and declassing. For partial adoption level 46 percent of sample partially adopted for shooting method and also for biological control of uzi fly, while 38 percent of Seri culturists partially adopted technique of late age rearing and spacing. But the more striking part is that 56% of respondent has not adopted new technology for Chawki Garden and rearing house which is essential and core part for silkworm rearing, while 52percent of Seri culturists did not adopt technology for silk worm disease management which is inevitably related to the separate rearing house because it reduces the silk worm disease and 42percent of Seri culturists did not adopt technique of late age rearing and spacing

The major findings identified in the present are on the respondent's socio-economic conditions or their profile with respect to their income and awareness towards the technological implications in sericulture. Most of the farmers in the study have started adopting the new technology because of the more yield they receive from the production and also we can make analysis of the educated farmers have given more preference to the scientific knowledge towards the cultivation. When we observe the overall knowledge of farmers about improved production technologies of sericulture comparatively it is increasing and growing as commercial activities. The relationship between selected independent variables and level of the farmers is gradually increased compare to the other agriculture and allied sectors as such

Suggestions for Improvement/Further Research

Since the study is conducted in the village that is mainly considered to be the primary sector in the economy and which is said to be the backbone of our country. If we see

from the individual point of view below are the policy suggestions.

With the fast developing of all other sectors like industry and communication agriculture is lagging behind initially that is during 1950 GDP from the agriculture is high than the sectors but gradually that has started decreasing. Proper initiative should be taken by the government for the development of agriculture. In this the technology also plays an important role in determining this. From the above analysis it has found that adoption of technology results in positive result and it has also found that many variables have determine the dependent variable that has mentioned in the study.

Only thing that is needed is to provide proper education facilities to the farmers in related to the adoption of technology in cultivation and also there should be Chawki centers that has to be opened in each district that helps the farmers to adopt the technology and make their productivity more

If we see from the government point of view, Government of India has taken several policies with regard to the development of Sericulture in our country. Some of them are like:

- Silk worm pest and disease control act of 1943.
- Silk worm seed act of 1952.
- Silk transaction act of 1969.

Other amendments deals with

- Quarantine measure to control pest and disease.
- The licensing of rearers.
- Controlling the seed production and distribution.
- Prohibiting the sale or purchase of silk worm cocoon and raw silk expect in the cocoon market and silk exchanges respectively established under the act.
- Enhance penalties for certain offences.
- Computer allocation in all research centres of sericulture.

Conclusion

The study revealed that 32 percent of sericulture farmers have full knowledge level and 22% of sericulture farmers have partial adoption level regarding updated technology. Similarly for technology adoption level 42 percent sericulture farms have full knowledge, while 13% have no knowledge regarding updated technology and 36% of silk farmers are not adopting upgraded technology. Therefore it can be inferred that knowledge level and technology adoption need to be synchronized and extended to the base level. Technology has to be cost efficient too, so that poor farmers can easily avail them. A Peer group can be made to disseminate the updated technical knowledge to the silk farmers and growers. Different awareness training program can be equally helpful which would include the associated factors. These factors have to be fundamental, critical, significant and exhaustive for creating an overall awareness regarding the knowledge of improved technology of silk farmers and growers. Then we can hope for a rapid boost up in the sericulture sector of Karnataka in days ahead.

References

1. Badal PS, Singh RP. Technological Change in Maize Production: A Case Study of Bihar, Indian J Agril. Economics. 2001;56(2):211-219.

2. Bandyopadhyay S. Economic Analysis of Some Critical Problems of Tea Exports of India, *Indian Journal of Agricultural Economics*. 1982;37(3):306-312,
3. Basavaraja H, Mahajanashetti SB, Sivanagaraju P. Technological Change in Paddy Production: A Comparative Analysis of Traditional and SRI methods of Cultivation, *Indian J Agric. Econ*. 2008;63(4):629-640.
4. Battese GE, Corra GS. Estimation of a production frontier model with application to the pastoral zone of Eastern Australia, *Australian Journal of Agricultural Economics*. 1977;21:167-179.
5. Bekele A, Viljoen MF, Ayele G, Ali S. Effects of Farm Size on Efficiency of Wheat Production in Moretna – Jirru District in Central Ethiopia, *Ind. J Agric. Econ*. 2009;64(1):136-143.
6. Belbase K, Grabowski R. Technical Efficiency in Nepalese Agriculture, *Journal of Developing Areas*. 1985;19:515-25.
7. Brasili A, Epifani P, Helg R. On the Dynamics of Trade Patterns, *DE Economist*. 2000;148(2):233-257.
8. Dandin SB. Contract Farming and Sericulture”, *Indian Silk*. 2002;41(6):5-9
9. Dandin SB. Quality up-gradation of Bivoltine Cocoons, *Indian Silk*. 2004;42:23-25.
10. Limunggura T, Boonchoo S. Sericulture technology of farmer network under community reeling factory. *Current Applied Science and Technology*. 2007 Nov 1;7(2-1):113-21.
11. Myers CE, Yamada M, Ji H, Yoo J, Fox W, Jara-Almonte J, *et al*. A dynamic magnetic tension force as the cause of failed solar eruptions. *Nature*. 2015 Dec 24;528(7583):526-9.
12. Prabhu B, Sivakumar A, Balakrishnan D, Sundaresan S. Effect of lupeol on antioxidants and xenobiotic enzymes in N-Butyl-N-(4-hydroxybutyl) nitrosamine induced bladder carcinogenesis in experimental rats. *Journal of Experimental Therapeutics & Oncology*. 2015 Apr 1;11:2.
13. Kasi E. Role of women in sericulture and community development: A study from a South Indian Village. *Sage Open*. 2013 Sep 10;3(3):2158244013502984.
14. Rajasekaran S, Nagarajha Selvan LD, Dotts K, Kumar R, Rishi P, Khetan V, *et al*. Non-coding and coding transcriptional profiles are significantly altered in pediatric retinoblastoma tumors. *Frontiers in oncology*. 2019 Apr 16;9:221.
15. Nagarajan NS, Muruges N, Kumaresan PT, Radha N, Murali A. Antidiabetic and antihyperlipemic effects of Clemeo felina. *Fitoterapia*. 2005 Jun 1;76(3-4):310-5.