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PROBLEM AND PROSPECT OF SERICULTURE IN JAMMU REGION

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ABSTRACT:-

Silk is a proteinaceous fiber produced by larva of silkworm. silk is consider as the queen of textiles.it is lustrous in nature .rearing of silk moth and production of raw silk is known as sericulture. Jammu region forms an important segment of sericulture belt of the country having potential to meet the demand of good quality raw silk of international grade. however due to various problems this industry could not show significant progress. understanding the importance of silk industry in the context of economical development and production of good quality silk tremendous efforts should be made in order to solve the various problems . the present study mainly focus on the importance of silk ,various problems faced by the farmers, prospect of sericulture in Jammu region and it also focus on various future strategies to solve the present problem related to sericulture and the productive growth of silk in Jammu region.

KEYWORDS:- Potential , sericulture, production, problems, employment.

INTRODUCTION:

The word sericulture is derived from Greek word SERICOS meaning silk and English word of culture meaning rearing, so sericulture is the rearing of silkworm to produce silk. In Jammu division sericulture was introduced over a century ago. Being traditional cultivator of Bivoltine silk of good quality Jammu region shows remarkable growth and development in sericulture. sericulture with its vast potential for employment generation play a significant role in alleviating rural economy. sericulture as a whole involve a series of economic activities like cultivation of silkworm food plant ,seed production, rearing of silkworm for production of cocoon from which

the filament is derived the post cocoon activities involving reeling, spinning, twisting, dyeing, weaving, printing, finishing and processing of silk fabrics, but unfortunately the potential of this region is characterized with insignificant and insufficient cocoon production that cannot sustain the market. The gap between the potential and actual yield are not fully exploited.in the backdrop of growing unemployemny ,effors are now under way to transform sericulture from a house hold occupation into a vibrant commercial activity.so there is great need to have new direction in planning by adopting more effective techniques and technology. today the Indian silk industry is already a major player in the global scenario and the growth prospectus .the productivity of sericulture depends on the extent to which famers adopt new sericulture innovations for the betterment of their livelihood .silk is a natural gift to mankind and a commercial fiber of animal origin other than wool. Being eco-friendly , bio-degradable and self- sustaining material. Silk has assuming special relevance in present age. Sericulture promote self-employment and livelihood activities in the rural economy and help to accelerate income and provide employemny opportunity to nearly 35 million people. It has huge potential for maximum returns . the major silk producing district of Jammu are UDAMPUR , REASI, KATUA, RAJORI which produce bivoltine silk of high quality. It helps in improving economic conditions of sericulture farmers and weaker section of society.it is the only cash crop that gives return within 30 days. Sericulture industry supports jobs begins with cultivation of mulberry tree. Sericulture contribute in the huge production of high quality silk. Sericulture represents end to end sustainable industry.it is the business that makes the most profit cost extension agencies particularly sericulture development department of J&k play a significant role in identify the problems and solution of various aspects of sericulture. sericulture has obtained a significant place in the industrial development of Jammu. Climatic conditions are quite favourable for the production of abundance silk. Sericulture offer high output gains as it demand very small input. it has a huge potential to raise economic level of the farming in Jammu with huge amount of foreign exchange It is environment friendly and employment orientated industry. Presently attempts has been made to find out the problems and prospectus of sericulture in Jammu.

METHODOLOGY: The study is mainly based on the secondary source of data. Material has been collected from different published reports, journals, previous years review papers. After the collection of data information is extracted and analysed and at last summarized briefly under the above mentioned heading. The study is being concluded with some viable suggestions for the future prospective in regards for improvement of sericulture industry in Jammu region .

IMPORTANCE OF STUDY: Sericulture is cottage cum labour intensive industry In all its phases,it is remarkable for its low investment and high returns. Sericulture is highly recommended by planners as one of the most effective tool rural reconstruction and development of rural society. Industry provide employment to more than 30 percent population of backward sections with the introduction of modern technologies and techniques In the field of sericulture. The demand of skilled labour has increased , employment opportunities has been increasing and increasing the standard of the farmers . there is undoubtable a lot of potential for development of sericulture in Jammu. Availability of raw material is important, and is the major problem too, frequent change in climate also leads to loss and it also lowers the quality and quantity of cocoon.so it is very important to understand the problem with a point of view to solve it as this

sector hold a key place in granting employment as well as the economy of the region. reeling and weaving sectors if get improved half of the problem will resolve on its own.so it is very important to know the cause of problem in order to eradicate it from its root for the better growth and development of sericulture in Jammu region as this sector is the only sector which demands low investment and huge returns. Sericulture have the huge potential but problems too so if we solve the problem we can get a remarkable and gainful profit as well as employment.it is low investment, quick and high return industry.

AIM: To determine the various problems faced by the sericulturist /farmers in Jammu region, with a mindset goal of resolving it.

PROBLEM AND CONSTRAINS:- Due to several problems faced by the sericulturist in this region ,this industry has not been developed up to the satisfaction although there is huge potential for its development . as a result this industry in Jammu region is not able to produce the required silk yarn. Various factors and problems stand on the way for its harmonious growth. Various problems include:-

- Availability of leaves
- Lack of sufficient grainages
- Frequent climate change
- Attack of pests
- Outbreak of diseases
- Lack of awareness
- Lack of knowledge
- Lack of development
- Difficulties in funds
- Seed production farms
- Non availability of proper marketing facility

1. Availability of Leaves:- Mulberry is the only food for silkworm and is major economic component in the production of silk Dhar *et al*, (2011).It is grown under different climatic conditions from temperate to tropical. Quality and quantity of leaves have direct effect on the cocoon harvest (Hooker ,1885). Most silkworm feed on mulberry leaves of species *Morus alba*. In Jammu mulberry trees in the wild form existed from antiquity. The area under mulberry plantation is being expanded to increase leaf availability for rearers and enrich great wealth Mir *et al*,(2010) .Various species of mulberry include:-

Indica Morus, Alba Morus, Laevigata And M.Serrata:- These all four species are available in Jammu but the most useful and productive one is *Alba morus*, easily available ,easily grown, and easily cultivated. Mulberry cultivation forms the backbone of sericulture Rathore *et al*,(2011). Mulberry leaf quality is one of the factor that have the greatest ability to affect silkworm growth and development as the leaf contributes 38.20%(approx.)successful reeling and production of high quality cocoon Rathore *et al*,(2012) we Jammu has a favourable climate for mulberry farming with its moderate temperature and abundant rainfall. Mulberry can be grown upto 800m for the optimum growth of mulberry and good sprouting the buds Bown,1995). The mean atmospheric

temperature should be in the range of 30c to 37c.with relative humidity of 65%to80% and sunshine duration of 5-12hrs per day. Due to all the rich weather condition Jammu



• Fig:- Silk Producing District

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• Fig:- Mulberry area Cultivation

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• **Fig:- Mulberry area**

AREA UNDER MULBERRY CULTIVATION IN JAMMU		
S.no.	District	Area
1.	Kathua	2.65lakh hectare
2.	Udhampur	2.90 Lacs hectare
3.	Samba	40 kanal
4.	Rajouri	588 kanal
5.	Poonch	0.24 hectare

2. LACK OF GRAINAGE:- Success of silkworm rearing mainly depend on careful grainage program. Systematic and methodology grainage not only minimize larval mortality due to diseases but also result in vigorous progenies Aramwit *et al.*,(2010).. The grainage program consist of selection ,storage, and preservation of seed cocoons. This is one of the most challenging tasks of silk industry. The grainage activity has three main component Cao *et al.*,(2016) :-

1. Supply of parent seed cocoon

2. Processing of cocoon

3. Moth examination and disposal of seed

All these activities are carried out by group of technical staff. The grainage of 15lakh capacity should have 16 technical staff to carry on all the process of egg production (Ashiq ,2006). The main aim of grainage is the production of high quality seed and free from diseases. Due to lack of knowledge and training Jammu district lack sufficient grainage(Bhat, 2014). All the activities of grainage process demand skilled and awared staff which are little less lacking in Jammu division as farmers are not aware of new and improved techniques and technology of handling

seeds Ganie et al,(2018). If improvement in this area will be done with adequate steps we can easily overcome this problem ,and this can only be done with the help of awareness and knowledge (Kaneez,2018) .

GRAINAGE EQUIPMENTS Singh et al,(2015):

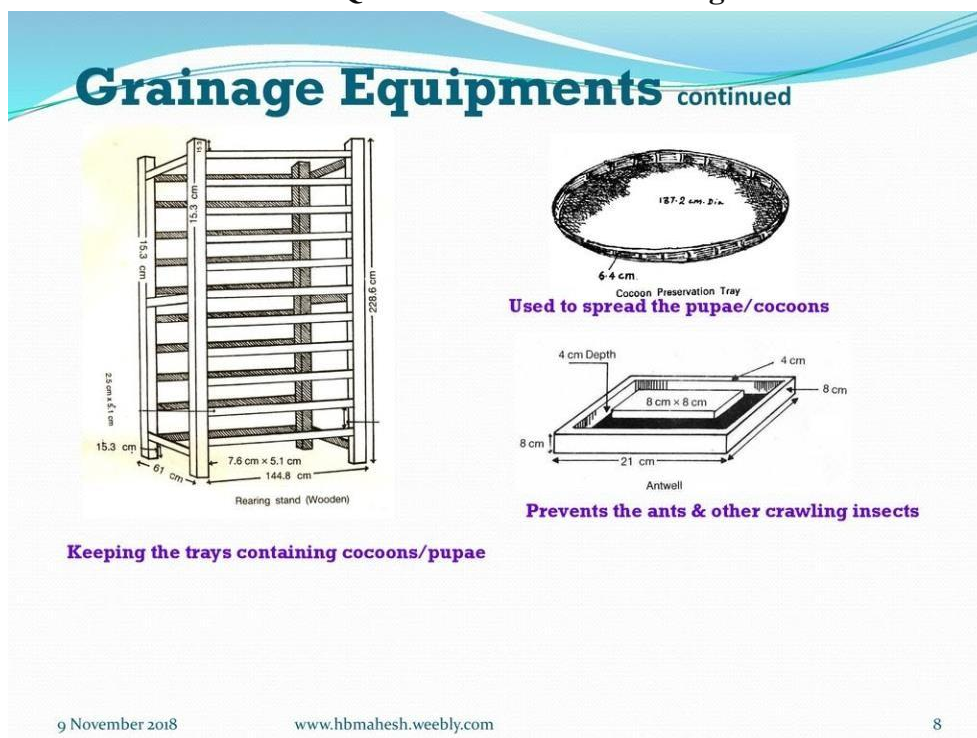


Table 1:- Sericulture trends, Cocoons prod. Productivity, Income and Employment in J&K

Year	Cocoon Crop (MT)	Income Generation (Lakh)	Silkworm rearers Pop (no's)	% change in mulberry trees	Raw silk proud. MTs.	% change in raw silk prod.
2006-	833	726	20263	-	90	-
2007-	803	500.00	20055	2.43	89	-1.12
2008-	738	455.67	19700	1.04	82	-8.53
2009-	810	800.00	22800	0	100	18.0
2010-	860	1100.00	25500	6.78	110	9.09

Source economic Survey, 2010-11

3.FREQUENT CLIMATE CHANGE: The silkworm *Bombyx Mori* is a Poikilotherm, highly sensitive to environmental fluctuations. The most suitable temperature for silkworm is 24-28degreeC. Temperature and various other climatic factors poses a direct effect on the growth and development of silkworm *Andrabi et, al(2017)*. As Jammu division have rich in aspects of climate but still small to marginal loss can be noticed due to change in climatic conditions. Fluctuation in

temperature during rearing period disturb the physiological condition of silkworm which result in poor quality of fodder and ultimately the poor growth of worms *Kaneez(2018)*. High temperature and humidity reduces larval growth ,cocoon weight get affected and decrease in temperature and humidity also affect the larva as it causes prolonged larval period, abnormal growth and larva become prone to diseases and thus it ultimately affect the cost of rearing. *Nivaashini(2018)*

STAGES	TEMPERATURE	MOISTURE
EGG	24-26C	75-80%
LARVAE	20-28	85%
COCOON	24	70%
ADULT MOTH	25	80%

NORMAL TEMPERATURE AND MOISTURE FOR DIFFERENT STAGES OF SILKWORM
Nivaashini(2018)

Fluctuations in climate can directly affect the quantity as well as the quality of silk fibre. Temperature change leads to lot of abnormalities in the overall production of silk. So it is very essential to know the ideal condition suitable for proper growth and development of silkworm for the better outcomes *Chanrakanth et, al(2015)*.

Table showing temperature fluctuation:*Anonymous(2016)*.

TEMPERATURE FLUCTUATION	CONSEQUENCES
38C	Decrease cocoon formation time
36	Decrease cocoon weight
B/W35C&36C	Decrease larval stage duration
35	Decrease cocoon quality
B/W29C&30C	Decrease pupa stage duration

4. ATTACK OF PEST AND OUTBREAK OF DISEASE:

The agro climatic condition of Jammu state are most ideal for bivoltine silkworm rearing. However quality cocoon production has suffered because of inadequate knowledge of pest and its attack *Balavenkasubbaiah et , al(2014)*. One of the main reason of decline cocoon production is the loss due to pest attack and then outbreak of disease which account for 30%loss. High temperature and high humidity result in pest attack and this attack disturb the metabolic rate of worms and ultimately leads to outbreak of disease. This not only cause the loss but it also affect the quality and quantity of silk *Reddy et,al(2009)*.

Various pests of silk are as fallows:*Anonymous(2016)*

PEST	NATURE OF DAMAGE
1.UZI FLY	Attack larvae/pupae
2.MITES	Damage larvae
3.DERMERTID BEETLES	Attack cocoons and moth

These pest slowly harm the stages of silkworm and result in the emergence of diseases which result in the loss or death of silkworm stages which bring great loss to overall production of silk .Various characteristics of viral diseases of silkworm are as fallows: *Illahi et, al(2007)*.

DISEASE	CAUSATIVE AGENT	SYMPTOMS
NUCLEAR POLYHYDROSIS	BmNPV	Swelling, fragile skin ,discharge of white fluid
CYTOPLASMIC POLYHYDROSIS	BmCPV	Diarrhoea, retarded growth translucent
INFECTIOUS FLACHERIE	BmIFV	Head raised ,watery faeces

These diseases are very harmful and can cause the death of larvae which ultimately leads to loss in silk production . so it is very important to know about these pests and diseases so that we can easily overcome this serious problem for the better production of silk in huge quantity *Ranjan et, al(2012)*.

5.LACK OF AWARENES AND KNOWLEDGE AMONG THE FARMERS:

Farmers are not so much educated as a result of this lack of awareness and lack of knowledge becomes the very crucial tool for the loss of quality and quantity. Lack of awareness among farmers with respect to various aspects of silkworm rearing, caring, disease control ,pest attack and many more which become the main reason of loss of productivity both qualitatively and quantitatively *Chauhan et, al (2015)*.Lack of knowledge leads to low productivity as compare to other district of state. As farmers are not aware of the cause and remedies of these diseases and attack of pest so production go on decline which result in low quality cocoon production. So by a earing farmers we can easily overcome this problem too *Kaneez (2018)*.

6. There is a lot of lack in development as due to lack of knowledge farmers are not aware of the new and developed technologies , and most of the farmers are living in remote areas where they cant take the advantage of any kind of new and improved techniques. farmers also faces fund problems as they have no other source of income rather than the culture of silk so they are sometimes work out of funds. there is one more problem which mostly affect the farmers is the availability of proper market facilities, as the market facility play a significant role in the overall development of the silk sector. By knowing and overcoming these problems we can easily increase the production as well as the overall development of sericulture in Jammu district.

Problems faced in reeling industry:-

1. Lack of availability of raw material
2. Lack of proper training
3. Lack of extension in the field
4. Lack of proper infrastructure.

1. LACK OF AVAILABILITY OF RAW MATERIAL:- There is lack of proper raw material for reeling is observed which is the main and foremost problem for farmers to face. As they are unaware of the new and improved technology as well as they are performing the activity in far areas where availability is not sufficient and successful.

2. Lack of proper training:- Many farmers and people who want to establish or those who are already in this field lack the technical training to raise the silkworms. one need to take sufficient biosecurity and hygienic in each and every step of silk reeling

3. Lack of extension in the field:- Some farmers are not aware of the extension technique and they are in lack of that in their field. As they don't have knowledge they are not using the new and improved extension method which may lead to decline of reeling rate.

4 Lack of Infrastructure: The lack of adequate silk reeling facilities and cottage basin units has emerged as a significant roadblock , in hindering the growth and development of this sector

Problems faced by weaving industry:-

1. Nature of wages
2. Lack of basic education
3. Source of credit
4. Lack of interest

1. Nature of wages:- Sometimes the farmers are not getting the amount which they are needed or demanded due to this they drop the idea of this culture and this ultimately decline the growth and development.

2. Lack of basic education:- Farmers are mostly not well educated in this field so they don't have knowledge regarding the basic things which they do not take care of and result in loss of crop and disease outbreak .

3. Source of Credit: There is relatively poor flow of credit to the silkworm reares and this one or the other way decline its growth.

4. Lack of interest: Due to lack of interest in sericulture , a low level of awareness regarding mulberry production, and silkworm rearing has been observed, which may decline the growth and development of sericulture in those areas.

Seasonal differences faced by farmers: - Environment play a crucial role in the growth and survival of worms. various environmental factors directly or indirectly affect the growth and development of silkworms. Due to fluctuations in these factors farmers face various problem in day today culturing of silk.

1. Variation in the climatic condition considerably affect the growth and development of worms
2. Fluctuations in temperature, humidity affect the cocoon production
3. Dry and hot condition result in fast evaporation of moisture from leaves, affect silk yield
4. Climatic change affect the abundance ,which can increase the pest attack

5. As silkworm is poikilotherm ,highly sensitive to temperature, very high temperature as well as very low temperature leads to various diseases which can lead to death of worm and lowers the quantity as well as the quality too.
6. Silkworm is photosensitive ,so fluctuations in dark ,light period can affect growth.

As sericulture is a unique field of agriculture mainly belongs to insect industry and contributes a rich fortune for mankind ,generating the employment has become the central task of economic planning .currently ,the demand for silk is more but production is less due to the various problems mentioned above , to overcome this we have to resolve the above mentioned constrains . As Jammu region is facing problems but it also have a huge potential and better prospects too in the field of sericulture.by adopting new techniques and technologies we can overcome the problems faced by farmers in its various steps .adoption of knowledge can solve their half way problems, awareness programs should be conducted to gather the knowledge ,extension management techniques should be used to avoid the loss. Steps which can help to solve problems are as follows:

- Awareness should be given via mass media or training
- Knowledge about disinfectants should be provided
- Adoption of new improved practices by farmers via extension activities
- Be aware of the disease and its control via knowledge
- Improved rearing rooms
- Adopt extension method
- Improve previous knowledge
- Research and development
- Training
- Seed organization
- Market development and coordination
- Disinfected rooms
- Use of new and improved tools and infrastructure
- Knowledge about the abiotic factors

By using all these steps we can improve the quantity as well as quantity of cocoon. Jammu sector has favorable climatic conditions which favors the production of high grade silk but due to some problems it faces decline but proper awareness and knowledge can overcome this decline too. So by adopting new and improved way as well as proper education these problems will no longer affect the growth and development of sericulture in Jammu region.

Prospect of Sericulture:-

Jammu region have excellence prospect with silk industry and sericulture due to its favorable climatic conditions.it is remarkable for its low investment and huge return. It can provide gainful employment to the weaker, marginal sections as well as to women. Potential is huge, so it is not wrong to say that Jammu sector along with its favorable conditions act as a hub of silk culture. Efforts are needed to overcome the problems of this sector not only to increase the employment

opportunities but also to promote exports.it can operate in small scale as well as on medium scale too.it need minimum investment and low gestation period with huge and high returns .this industry also help in transferring wealth from rich to poor .mulberry once planted will support rearing of silkworm for a period of 15-20 years without much reduction in the field.as it is labour intensive and ecofriendly activity ,it does not cause any hazardous .money flow from high end group to low level group.so its this industry have a wide prospect which can act as a promise for gainful employment and production of good grade quality and quantity of silk.

FUTURE STRATEGIES:

Sericulture industry has got many challenges but still there is lot of hopes, scopes, and opportunities. we should have proper plan with sound sericulture development policies for Jammu region. So that it can become a very good tool for poverty alleviation as well as can contribute to increase the economy of the region as well as the country. Proper training, new tools and techniques, establishment if silk center, research institute, capacity building in seed sector, use of advance technology, seed organization, awareness programs, extension techniques usage of mass media exposure, market development and various others steps should be taken for the future prospect. Help in extension programme planning in cooperatives for large scale adoption of improved technology for high productivity .this may provide sound footing for silk over all growth and development.

CONCLUSION:- The present study was undertaken to know the major as well as minor problems faced by the farmers. there is un-doubtable abundant potential for development of sericultre in Jammu region. The study provides insights the current status of sericulture in jammu sector along with various problems. Prospects are also highlighted for the development of sericulture to enhance the production and productivity level of raw silk. once we know the problem we can easily find out the solution .silk culture have huge potential in Jammu region it can serve a greatest mode of employment generation , due to its rich and marvellous climate quantity as well as quality of silk will increase .less investment more profit is the current scenario of this industry. this industry have a luxurious future .

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