WOMEN EMPOWERMENT THROUGH SERICULTURE IN DOON VALLEY

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Abstract

Sericulture, an agro-forest based cottage (Silk) industry, is accepted as an employment generating socio-economic development sector since ancient times. In recent years, Central Silk Board has launched various programmes for development and improvement of socio-economic conditions of poor seri-culturists but these are suitable only for male dominated areas of activities. Sericulture, as a cottage industry, provides ample work opportunities for women in the rural areas particularly in silkworm rearing and reeling, while men, largely work in the field and in weaving. The involvement of women in different activities of sericulture is about 53% and their contribution in the on-farm activities understandably is lower than that in post-cocoon activities. Sericulture is an ideal avocation for women because of the many reasons. In this direction, due to its topographical conditions, Uttarakhand state has been considered for implementation of women empowerment programme through Regional Sericultural Research Station located at Sahaspur, Dehradun. The objective of the programme was mainly to provide earning opportunities to poor, backward, SC/ST women in their own villages through silkworm rearing.60 women beneficiaries have been selected/ identified in Vikasnagar area of Dehradun district and were imparted training in mulberry cultivation, silkworm rearing and cocoon handicraft. In the present paper, results obtained from the rearing conducted by the women silkworm rearers in spring crop during 2011 to 2013 is discussed along with economics of cocoon handicraft.

Index Terms- Empowerment, Silkworm, Cocoon, Handicraft.

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Introduction

Sericulture is both an art and science of rearing silkworms for silk production. Silk as wearable fibre was first discovered by the Chinese empress Xi Ling Shi during 2,640 B.C. and its culture and weaving was a guarded secret for more than 2,500 years by the Chinese. Being a rural based industry, the production and weaving of silk are largely carried out by relatively poor sections of the society and this aspect of sericulture has made it popular and sustainable in countries like India.

In India, sericulture is not only a traditional but also a living culture. Sericulture being a farm-based enterprise is highly suited for both large and small land holdings, with low capital investment. The very nature of this industry with its rural based on-farm and off-farm activities and enormous employment generation potential has attracted the attention of many planners and policy makers to recognise the industry as one of the most appropriate avenues for socio-economic development of a largely agrarian economy like ours. The percentage of population below the poverty line ranges from 47.15% in Orissa to 12.72% in Kerala. In major silk producing states it is about 30% on an average. Sericulture can also play a very important role in alleviating rural poverty due to its high work participation rate and thereby can check

migration from rural to urban areas. It is estimated that sericulture can generate employment @ 11 man-days per kg of mulberry raw silk production (in on-farm and off-farm activities) throughout the year. Several socio-economic studies have affirmed that the benefit-cost ratio in sericulture is highest among comparable agricultural crop.

Women contribute to a little less than 50% of the country's population and most of them are largely rural based, deriving their livelihood through agriculture and other land based activities, either as family members or wage earners. As a cottage industry, sericulture provides ample work for women in the rural areas particularly in silkworm rearing and reeling, while men, largely work in the field and in weaving. The involvement of women in different activities of sericulture is about 53% and their contribution in on-farm activities understandably is lower than that in post-cocoon activities.

Cocoon craft an art of designing some handicrafts products like flowers, bouquets, garlands, greeting cards and other artistically designed fancy items of decoration. Handicraft products are catchy, cost effective objects of gift and decorative value. Cocoon craft can be taken as a commercial activity particularly by women folk of low socio-economic status and in turn bargain good economic return.

In view of the above Central Silk Board, Ministry of Textiles, Govt. of India, Bangalore has taken this task to empower women through sericulture by imparting training in different activities of sericulture so that they should be self dependent and decision making in this field. In this direction, being its topographical conditions Uttarakhand state has been considered for implementation of this programme through its Regional Sericultural Research Station located at Sahaspur, Dehradun. 60 women beneficiaries were selected/ identified in Vikasnagar area and were imparted training in mulberry cultivation and silkworm rearing. In the present paper, results obtained from the rearing conducted by the women silkworm rearers during spring crop from 2011 to 2013 are discussed.

Materials and Methods

Silkworm seed of CSR hybrids procured from NSSO, Bangalore through DOS, U.K., Dehradun was distributed among the farmers, after chawkie rearing, to the women beneficiaries. Silkworm rearing was conducted as per the recommended package of practices (1 and 2). Ripen worms were mounted for cocooning and were harvested on 7th day of mounting. Weightment of cocoon was recorded. Two day straining on cocoon handicraft was also imparted to the selected beneficiaries.

The pierced and cut cocoons available at Silkworm Seed Production Centre is at all not reel-able and hence are disposed off to spun silk industries at a very low rate. It is estimated that these cut cocoon byproducts could lead to a value addition up to 30.0% in mulberry post cocoon sectors. The said cocoons can be utilized skillfully with effective management in cocoon craft, parallel to raw silk reeling from good cocoons.

Women empowerment through cocoon handicraft:

a) Basic Raw Material for cocoon handicraft:
Cut/pierced cocoons and rejected (dead / double) cocoons.

b) Other Miscellaneous materials:
Other miscellaneous materials are also needed viz., Scissors, Blade, Cotton thread, Cardboard, Drawing sheets, Needles, Favicol/fabric glue, Craft paper, Glitter paper, Cello and colored tape, Stapler, Plastic ornamental material, Soft binding wire, Chemical dyes, Fabric paint and water colors, Heaters, fire wood etc.

Handicraft products (which can be prepared from cocoons):
Small toys, Peacock, Rakhees, Preparation of small beaded garlands, Printings, Greetings cards Fancy images of Ganesha etc.

Expenditure/cost of input items

Item	Amount (Rs.)
Scissor	30-55
Zigzag scissor	150-300
Needle	2-3
Cotton thread roll	10
Satin Ribbon	3/mt.
Soft wire	40-60/250 gm
Plier	100-150
Paper cutter	20-30
Blade	3-5
PVC sheet	15/meter
Sketch pen	20/pack
Paint brush	10
Chemical dyes	175-1500/500 gm
Cello tape	30
Gift wrappers	5/sheet
Fevicol	30-50/tube
Fabric paint	30-50/tube
Drawing sheet	5/sheet
Golden Beads	50-100 (one garland size)
Stapler	30-70

Preparation of cocoon handicraft:

The cocoons by products (cut/pierced), after procurement, were sorted for uniform size and shape. The stained and dirty cocoons were rejected from the sorted lot. Later on the sorted cocoons were deflossed. The deformed/double cocoons was used in the preparation of small toys, fancy images of Ganesha, Peacock, Rakhi and any other decoration items of creative innovation (3). The cap portion of the cut cocoon was used in the preparation of small beaded garlands, greetings cards and as assembled parts of decoration items. The cocoons were dyed for desired product colour need to be given proper shape as per the product design by using blade, scissors.

Cocoon dyeing

Different colours give charm and glamour to the objects, adding to its visual appeal. Colouring/dyeing was a basic requisite of cocoon handicraft preparation. Cocoons were dyed with natural colours, which had added value and originality to the creativity of the craftsman. Chemical dyes were used for colouring the silk yarn/fabric. Only soft water was used in dyeing of cocoons as hard water consumes more quantity of dye and it may also result in uneven dyeing.

Water was boiled and dye powder was added to get the required colour, colour was mixed initially with 100 ml of hot water. Stirred continuously to avoid formation of clumps and then filter the dye solution. Further, this dye solution was added to the hot water and stirred continuously for uniform mixing of colour. Clean, deflossed cut, rejected cocoons were dipped in this solution. Solution was stirred continuously again till the colour absorption of dipped cocoons is uniform. Cocoons were dipped in the temperature range of

40-50ºC only, otherwise the higher temperature will affect cocoons' sericin content giving deformed look. Then the dyed cocoon were removed from the solution and allowed to dry in a single layer under shade only, to avoid its decolouration. The dyed cocoon material became ready to be crafted into desired end product.

Designing of cocoon craft products

Cocoon Flower

Cocoons were cut in the shape of petals dyed with natural colour having 3 to 4 petals per cocoon. 3-4 such cut cocoons were arranged in a flower shape. Petals were fixed with glue (fevicol). These flower cocoons (petals) were dried and pierced by a sharp needle in its centre to insert a soft wire and knot at the top as well as bottom of the flower which acted as its stalk. Another cocoon was cut in the shape of leaf, dyed with green colour. Then these leaves were arranged in a way around the flowers to give it a natural leafy look. An artificial plastic leaf can also be used as a substitute of the purpose.

Single flower bouquet

It was prepared by arranging/fixing a flower along with leaf to the branch shaped wired green plastic material. Then it was wrapped in a conical transparent PVC sheet and in turn again covered with a glittering colour paper by cello tape.

Fig. - 01: Single Flower

Fig. - 02: Single Flower

Flower Bunch Bouquet

About 25-50 cocoon flowers of different colours were taken and arranged in a flower bouquet shape. Number of flower cocoons depends upon the size and design of the bouquet to be prepared. It was wrapped in a transparent PVC sheet with a glittering craft paper to give it bouquet look.

Fig. - 03: Bunch Flower Bouquet

Fig. - 04: Bunch Flower Bouquet

Garland Designing

There were three types of garland designs.

(i) Flower Bunch Garland

Already "cut cocoon" (without pupae) were cut to open the other end by using a zig zag scissor. 5-6 such cocoons were stitched by joining their ends firmly. Likewise, more stitched circle of cocoons was stitched further by thick thread to give it a shape of garland. Multicoloured cocoons were used to grace the look of the garland. About 500 cocoons were required for preparation of the garland with heavy bouncy look. Cocoon flower garlands looked very graceful and could last for years. Five garlands can be prepared from 1 kg cut/pierced cocoon.

Fig. - 05: Flower bunch Garland

(ii) Single Cocoon cap garland

This type of cocoon garland was prepared by using the cut end of the cocoons. The cocoons were given shallow cut from the open (cut/pierced) end side with small scissor to give it v-cut shape. Then a colour cocoon was inserted into this cut cocoon. After this, one or two gold colored beads were inserted through the apical end of this cocoon followed by a cocoon and beads again alternately with the help of a needle thread forming a shape of garland. As per length of the garland, number of cocoons could be decided for preparation of garland. This produced a simple type of garland with an elegant look.

(iii) Cocoon cap garland

The caps removed during inner cleaning of the cocoon, were fixed together just like two halves of a walnut with the glue. After dyeing with different colours these were stitched intermixed with golden beads in a line to form a garland with beaded look. White and colored caps beaded together added to its visual appeal. This type of garland was very light, delicate with decent look and easy to carry as surprise gift.

Fig. - 06: Single Cocoon Cap Garland

Fig. - 07: Cocoon Cap Garland

Greeting Card Preparation

In greeting card preparation, both white and colour cocoons were used. These cocoons were cut into small pieces of various size/designs so that these were shaped as flowers, trees, and other scenic objects including small huts, animals birds etc. These small pieces were fixed in deigned shapes on a piece of a craft/drawing paper and water colours were used, wherever necessary, to design and paint the card. These cards looked awesome and gave satisfaction both to giver and receiver as being hand crafted from the natural material. A line of the message suiting well the occasion was carved on this card marking the moment with nostalgic memories.

Fig. - 08: Greeting Cards

Fig. – 08 A: Greeting Cards

Other Fancy items of Gift/Interior Decoration

Small gift/decoration items like colourful birds (Peacock, Parrot), images of deities viz. Ganesha etc., miniature mulberry/other plants, trees, historic monuments like Taj Mahal and mythological snowman, silk mark or any other items of aesthetic value which could exhibit the creative skill of craftsmanship, was prepared and designed by utilizing cocoon by products and waste deformed/rejected cocoons. These items exhibited exquisite grace when decorated in home, office etc.

Results and Discussions

In the present study, 60 women beneficiaries were identified in seven villages of Vikasnagar area of district Dehradun after survey using random sampling technique to collect data on family size, land holding, occupation, caste-wise distribution, monthly income, educational status and participation of men, women and children in silkworm rearing.

Training programme for Women

In order to empower women, they were trained about plantation to improve survival percentage of plants, pruning methods, agronomical practices, disinfection procedures, care during silkworm rearing and silkworm disease management and processes to be adopted before marketing. In addition to the trainings imparted on mulberry cultivation and silkworm rearing, two days training on "Cocoon Handicraft" was given to the all identified women beneficiaries so as to improve their income by making and marketing cocoon handicraft from the cocoons not suitable for reeling purpose (Table – 01) to supplement their family income and uplift their status.

TABLE -01: Details of the training imparted to Women beneficiaries

Sl. No.	Topic
01	Preparation of pits for raising new plantation
02	Selection of saplings for mulberry plantation
03	Application of FYM and chemical fertilizers
04	Host plant cultivation – Mulberry
05	Maintenance of plantation and its care
06	Disinfection of rearing house and rearing appliances
07	Transportation of chawki worms
08	Bed cleaning, proper spacing and care during moulting
09	Late age silkworm rearing
10	Silkworm disease management
11	Various type of mounting materials and picking of ripe worms
12	Harvesting and sorting of cocoons , marketing etc.
13	Cocoon handicraft

Silkworm Rearing

The rearing performance of the women beneficiaries has been depicted in Table – 02. It is clearly indicating that the cocoon yield has increasing trend over the year. Result shows that cocoon yield and income per farmer has increased by 30.97 % and 48.33% respectively in comparison to previous year (2011) Table-02.

TABLE -02: Rearing Performance of Women Beneficiaries

Parameters	Year		
	2011	2012	2013
Total Dfls Reared	4025	4045	4070
Average DFLs reared/farmer	67	67.4	70.17
Total Cocoon Production (kg.)	1324.7	1477.7	1816
Average cocoon Production (kg)	32.910	36.530	44.62
Average Rate/Kg (Rs.)	199	167 *	201
Average Income (Rs.)/farmer	4404	4126 *	6120

* Due to the low rate (Rs. per Kg.) of green cocoon, the average income has been decreased during the year 2012 though the average cocoon production has increased.

Further, the number of beneficiaries has attained higher range of cocoon production (yield kg/100 DFLs) on yearly basis indicating the impact of training imparted to the beneficiaries (Table – 03). The impact of transfer of technology through training is in accordance to the earlier findings (4, 5, 6 and7)

TABLE -03: Frequency Distribution of Farmers

SL. No.	Range (Cocoon Yield in kg./100 Dfl)	Season		
		Spring'11	Spring'12	Spring'13
01	0.0 – 10.0	--	--	--
02	10.1 – 20.0	--	--	--
03	20.1 – 30.0	06 (10.00)	06 (10.0%)	--
04	30.1 – 40.0	51(85.0)	47 (78.3%)	07 (12.07%)
05	40.1 – 50.0	03(05.0%)	07 (11.7%)	41 (70.69%)
06	50.1- Above	-	--	10 (17.24%)

Handicraft

During two days training on cocoon handicrafts, the beneficiaries were imparted training of flower, flower bouquet, garland making etc. from the cocoons and the products prepared in the said training were appreciated. The prepared garland (Fig.-01), single cocoon flower (Fig.-02), bunch of cocoon flowers (Fig.-03 & 05), greeting cards (Fig.-04) etc.

Economics of Designing/Development of Cocoon Crafts:

The approximate number of cut / pierced cocoons per Kg is about 3300. However, the number may vary based on the shell wt. of the cocoon, Details of the items which could be prepared from one kg. of cocoons and their economics are given below.

TABLE -04: Preparation of Items with One kg Cut / Pierced Cocoons

Items	Big Garland	Small Garland	Bouquets	Single Flower Bouquet	Greeting Card
No of cocoons required	550-600	80	90	3	2-3
Cost of cocoon (Rs)	70	10	11	0.36	0.5
Cost of other material (Rs)	10	10	50	3	3.0
Cost of Labour (Rs)	50	10	10	2	3.0
Total cost of production (Rs)	130	30	71	5.36	6.50
Sale price (Rs)	300	50	150	10	12.00
No. of items which could be prepared	5-6	40	30-35	1000	1100
Profit (Rs)	170	20	79	4.64	5.50

There is a good demand for the garlands and flower bouquets in the market and one can get good bargain for their meagre investment. This activity can well be considered as a self employment at free time with minimum investment but considerable profit. A minimum of Rs.1500/- can be earned per each Kg of cut / pierced cocoons. Thus the cut / pierced cocoons having little commercial value can provide handsome returns if utilized for preparation of cocoon crafts. Rural women folk can take up the activity and earn more as an aid to their livelihood

Women have always been marginalized and relegated to the status of subjugated class in the Indian society. Due to lack of specific implementation of plans, local communities especially women have remained outside the scope and benefits of government schemes and programmes. Women have not actively participated in their emancipation due to their lack of economic independence and illiteracy. There is a need

to address the issue by raising the status of women. The key lies in women empowerment through economic self-sufficiency and higher awareness levels on social, political and legal issues through mobilization.
It is apparent from the study that women beneficiaries, who have been imparted training on different aspect of sericulture, have improved their cocoon productivity resulting in improving their income. Hence, this activity may be useful to empower the rural women by adopting sericulture and training plays an important role in improving the socio-economic status of the beneficiaries.

Conclusion

1. The cocoon production of the identified beneficiaries has increased on adoption of new improved technologies resulting in improvement in their income and social status.
2. Training on "Cocoon Handicraft" has provided an additional opportunity to the beneficiaries to improve their income by making and marketing cocoon handicraft materials resulting in the improvement in their status. This may lead to establish sericulture activity more remunerative.

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