

# Development of handloom shawls from pure and blended yarns of mulberry silk and merino wool

■ Alka Goel and Hema Upadhayay

Received: 28.12.2017; Revised: 11.04.2018; Accepted: 30.04.2018

■ **ABSTRACT :** Under the present study woven shawls were prepared from pure and blended yarns of merino and mulberry silk waste in (50:50) blend ratios on handloom. 30 arrangements of motifs were made on CAD. These arrangements were evaluated by a panel of experts using a five point ranking proforma for different attributes namely, arrangement of motifs, colour combination, overall aesthetic appearance and suitability for selected articles. As per the ranking the five best designs were selected for the development of woven shawls. The outcome of the study divulges that the cost of the shawls was found reasonable with regards to the work, quality and fibre content of the fabric. The developed products were highly appreciated by the traders as shown by their acceptability (above 80%) to all developed shawls for different parameters *i.e.* overall aesthetic appearance of the design, recognition with current fashion trends and suitability of the developed fabrics for shawls. They appreciate the texture, weave, drape, softness and hand of the developed shawls. Traders expressed great scope of this type of silk and wool blended shawls because silk has the greater commercial importance especially in exports.

■ **KEY WORDS:** Weaving, Mulberry silk, Merino wool, Blending, CAD, Handloom

■ **HOW TO CITE THIS PAPER :** Goel, Alka and Upadhayay, Hema (2018). Development of handloom shawls from pure and blended yarns of mulberry silk and merino wool. *Asian J. Home Sci.*, 13 (1) : 265-270, DOI: 10.15740/HAS/AJHS/13.1/265-270. Copyright@ 2018: Hind Agri-Horticultural Society.

See end of the paper for authors' affiliations →

## Alka Goel

Department of Clothing and Textiles, College of Home Science, G.B. Pant University of Agriculture and Technology, Pantnagar, U.S. Nagar (Uttarakhand) India  
Email : alkagoelp@gmail.com

Hand weaving is most creative expression through fibre interplay and surface texture with patterns and colours. (Singh, 2007) Handloom productions provide a vital economic base in the rural sector and are one of the major contrivances for the socio-economic transformation of a large chunk of rural populace.

The beautiful hills of Uttarakhand are the abode of the craft of weaving wool. This craft, has found its roots in the region just 3-4 generations back, initiated by the rural women of the villages has now become inseparable from the lives of the natives, specially by the tribal belts (Bhotias) of Uttarakhand (Dhar, 2011). Hand-looms were

placed in their homes and womenfolk used to do weaving work as their leisure time activity for preparing fabrics specially the woven shawls. The charm of hand-woven products is fading due to easy access to high speed machines. But still there is a mass of fashion conscious customer who always ready to pay higher amounts for hand- made unique woven products. Overall performance and aesthetics are the two major criteria for customers for selection of apparels in today's world. Export market too, focuses more on uniqueness of the fabric in terms of its look, texture etc. The designing and manufacturing practices adopted for textiles by the hill people lags

behind in terms of new innovation and modern taste of customers. Therefore, it needs addition of some advanced technologies of designing and manufacturing for upliftment of their textile trade (Goel *et al.*, 2009). Design innovation and infusion of modern technologies can become effective way to attract the potential customers and hence uplift the handloom sector (Kapur and Mittar, 2014). Hence designing through CAD can lead to the desired results. Blending technology in textiles provide wide scope for the experimentation in successful utilization of fibre waste by its union with other available fibre for end number of applications. There is also a need to promote blending process to develop innovative and diversified products. These blended and handloom woven fabrics have the potential to enhance domestic and export earnings of the handloom weavers, thereby strengthening their income generation capacity. So, In order to make use of waste silk for better applications and to increase its commercial value, it was blended with wool. Efforts were made to produce designer blended shawls on the handloom with the following objectives:

- To develop fabrics using blended mulberry silk waste and merino wool yarns
- To developed hand-woven shawls from the most suitable blend
- To assess the market potential of the developed products

## ■ RESEARCH METHODS

### Development of designs :

In the present research work a total of 30 woven designs arrangements were made suitable for shawl designing with the help of corel draw.

### Visual evaluation of the developed designs and selection of best suitable design for development of shawls :

The developed designs were evaluated by a panel of 20 judges consisting of 10 staff members (<30 years of age) and 10 M.Sc and Ph.D. students (>30 years of age) from college of Home Science. The respondents were selected purposively from College of Home Science as they have basic understanding of designing. For the ranking purpose 5 point scale was used. Total score was calculated for each parameter of every design. The design which scored highest marks was selected as the most preferred design of that category.

Ten (10) most preferred designs were selected and in order to depict the designs more technically, the best 10 designs were converted into designed weave structure with the help of weave software. With the help of this software these designs were clearly made as per all yarn count and colour details (fabric simulation). These selected weave designs were completed with this printout of the draft and lift plans in order to gain accuracy in weaving.

These weave designs along with their draft and lift plans were further evaluated by the panel of judges and on the basis of the scores obtained 5 highly preferred designs were selected for fabric construction. These selected designs were finally woven on handloom and shawls were made.

### Cost calculation and acceptability assessment of the developed shawls :

Cost of the developed products was also estimated by assessing different parameters like cost of raw material, labour charges involved in yarn and fabric formation, dyeing charges and finishing charges etc. Acceptability of the developed products were also analysed on the basis of the scores given by the traders to the developed articles on different parameters like design of the product, colour combination of the motif with the background, aesthetic appearance of the product, acceptance with current fashion trend. To assess the percentage acceptability of the fashion apparels an acceptability index (A.I) was set up :

$$A.I. = \frac{\text{Total scores of each developed shawl}}{\text{Maximum score obtained}}$$

## ■ RESEARCH FINDINGS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

### Visual evaluation of the developed designs :

Structured rating scale including various parameters related to designs was developed for obtaining the response of target customers. The different parameters related to evaluation of designs were as follows:

- Appropriateness of designs for textile purposes
- Acceptance of designs on the basis of current fashion trends
- Colour combination

– Overall aesthetic appearance

The respondents rated the each individual parameter. Each parameter was then statistically analyzed for all 30 designs (woven) for both the age group of the respondents. On the basis comparison of opinion of both age group of (<30 and >30 age) of respondents, on total mean scores and, top 5 woven designs were selected from both group of respondents. Hence top 10 woven designs numbered as 5, 6, 7, 8, 10, 15, 16, 25, 26 and 28 were selected. These best 10 designs were then converted into designed weave structure with the help of weaving software to depict the designs more technically as per the yarn count and colour details.

**Preparation of woven shawls with selected designs:**

On the basis of the scores obtained 5 highly preferred designs 6(12.6), 8(12.5), 15(12.6), 25(12.4) and 28(12.2) were selected for fabric construction. These selected designs were finally hand woven to convert into shawls. It was seen that out of best five selected designs of shawls two shawls numbering 5 and 8, were made

with pure wool and pure yarns of silk waste, respectively. The other remaining shawl designs were numbered as 15, 25 and 28 were manufactured by using 50:50 blends of wool and waste silk yarns. Shawls were made successfully on handloom was found very helpful during the preparation of designs in terms of saving time, energy, money and also by utilizing the creative skills of the researcher. The weaving software programme helped in knowing the exact requirement of yarn required to weave the fabrics for shawls, as well as fabric simulation was seen before manufacturing of real fabric.

**Cost analysis of developed shawls :**

Cost is one of the important factors of any designed article. In order to assess the market potential of the developed shawls, researcher estimated the cost of shawls and rating scale was developed to assess market potential of the fashion apparels. Cost of merino wool yarn was Rs. 800/- per kg and cost of blended yarn of merino wool and mulberry silk waste (50:50) was Rs. 1200/- per kg. The finding in the table shows that the cost of the shawl prepared from pure wool is highest

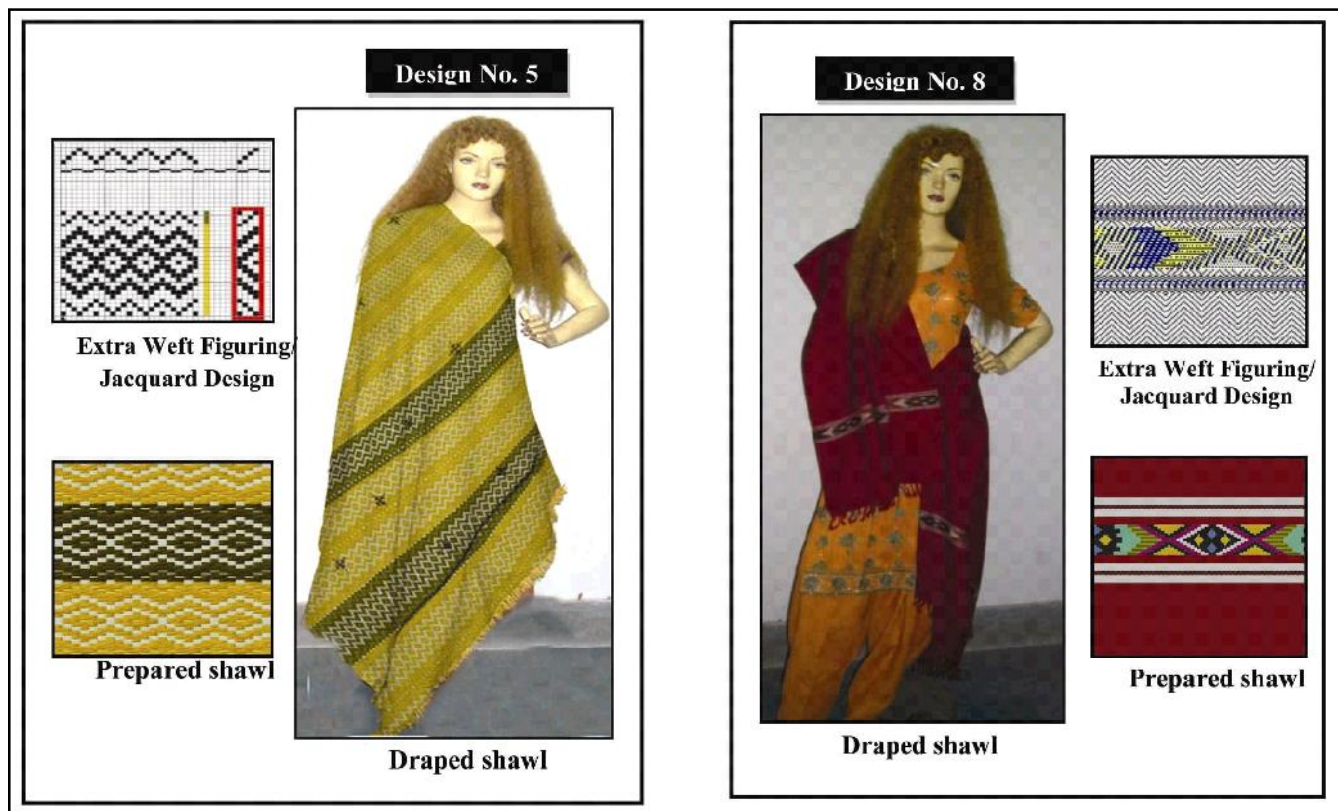


Fig. 1 contd...

Contd... Fig. 1





Whereas the shawl prepared from the pure silk (waste) was found comparatively lowest amongst the shawls prepared from Merino wool and Mulberry silk blended fabric. The cost of the shawls was found reasonable in accordance with the work, quality and fibre content of the fabric. Apart from this the cost may further be reduced if production will be made in bulk as the present analysis is based on small samples/laboratory experiments only.

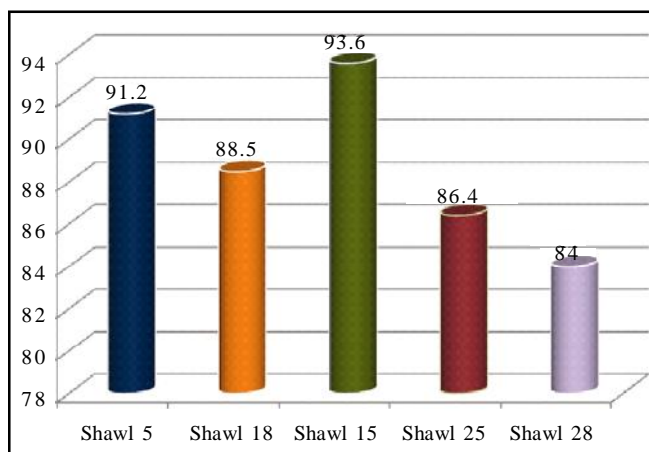


Fig. 2 : Acceptability index for developed shawls

### Assessment of acceptability of the developed shawls :

Opinion of the traders on target market and customers were taken. A total of 15 traders dealing in marketing of silk and wool items evaluated the designed woven shawls made from pure and blended mulberry silk-merino wool. It was observed that all the traders appreciated and showed thus interest for this attempt as well as valued the products for various parameters as shown in the performa. The developed products were highly preferred by the traders as shown by their acceptability index (above 80% for each designed shawl). They appreciated the texture, weave, drape, softness and hand of the shawl made. Traders expressed that there is a great scope of this type of silk and wool blended fashion apparels which includes shawls and stoles, because the silk has the greater commercial importance especially in exports. Indian silk is widely acclaimed as popular dress material of elegance. Demand for silk fabric goods and made-ups in export market is increasing day by day as consumers are becoming more conscious about the eco-friendly nature of silk fabrics. Similar work related to the present investigation was also carried out by Sharma and Pant (2013).

Table 1 : Cost analysis of the developed shawls

Selected design no. of shawl	Raw material used for shawl	Weight of raw material used for shawl (g)	Cost of yarn used	Dyeing source and Charges (Rs.)	Weaving charges of shawl (Rs.)	Finishing/ calendaring charges (Rs.)	Total cost (Rs.)
Shawl 5	Pure Wool	400g	320/-	Natural dye 30/-	Twill weave 60/-	10/-	420/-
Shawl 8	Pure Silk (waste cocoon)	300g	360/-	Reactive dye 50/-	Twill weave with extra figuring 80/-	10/-	500/-
Shawl 15	Wool + Silk blend (50:50)	350g	140+ 210 = 350/-	Reactive dye 50/-	Twill weave with extra figuring 80/-	10/-	490/-
Shawl 25	Wool + Silk blend (50:50)	350g	140+210=350	Reactive dye 50/-	Twill weave with extra figuring 80/-	10/-	490/-
Shawl 28	Wool +Silk blend (50:50)	350g	140+210=350/-	Reactive dye 50/-	Twill weave with extra figuring 80/-	10/-	490/-

Table 2 : Mean scores of developed shawls

Sr. No.	Criteria of evaluation	Mean score (n=15)				
		Shawl 5	Shawl 8	Shawl 15	Shawl 25	Shawl 28
1.	Design of the product	67.5 (90)	66 (88)	72 (96)	66 (88)	57 (76)
2.	Colour combination of the motif with the background	72 (96)	67.5 (90)	66 (88)	57 (76)	60 (80)
3.	Hand and texture of shawls	64.5 (86)	67.5 (90)	69 (92)	63 (84)	66 (88)
4.	Acceptance with current fashion trends.	70.5 (94)	63 (84)	72 (96)	69 (92)	69 (92)
5.	Overall aesthetic appearance	67.5 (90)	68 (92)	72 (96)	69 (92)	63 (84)
	Total scores obtained by articles	342	332	351	324	315
	Acceptability index	91.2	88.5	93.6	86.4	84

### Summary and Conclusion :

The pure and blended fabrics of mulberry silk waste with merino wool prepared on handloom were successfully used for making shawls. Designing of shawls was done with CAD. Recent software was used for weave designing which were found very effective for time saving. The virtual simulation of designed shawls made it very effective to know its final appearance before manufacturing.

Pure and blended handloom fabrics f blended and union fabrics have the potential to enhance domestic and export earnings of the handloom weavers. The age old art of making shawls in the Himalayan belt of Uttarakhand as well as other states can be revived by utilizing new designs and colour combination. Rural women can learn these techniques, may work in groups and will be able to generate income. The application of CAD can also be explored for the designing of other apparels (stoles, muffler, jacket, skirt and top) and for home furnishing items *i.e.* durries, asans, namda, cushion covers etc. As the designs were made through CAD, so all kinds of alteration/ modification, arrangement, change in hue/ colour combinations were easily possible. Thus it

is concluded that developed hand woven products by blending not only expand the handloom product range but also an important step in the direction of waste utilization and rural upliftment.

---

Authors' affiliations:

**Hema Upadhayay**, Department of Clothing and Textiles, College of Home Science, G.B. Pant University of Agriculture and Technology, Pantnagar, U.S. Nagar (Uttarakhand) India  
(Email : hema.upadhayay@outlook.com)

---

### ■ REFERENCES

- Goel, A., Maurya, P. and Goel, B. (2009).** Traditional textile designing practices of weavers of Uttarakhand. *Indian Res. J. Extn. Edu.*, **9**(2):115-119.
- Kapur, H. and Mittar, S. (2014).** Design Intervention and craft revival. *Internat. J. Scientific & Res. Publications*, **4**(10) : 1-5
- Sharma, A. and Pant, S. (2013).** Studies on camel hair-merino wool blended knitted fabric. *Indian J. Fiber & Textile Res.*, **38** :317-319.
- Singh, C. (2007).** Handloom as a means of expression. *Yojana*. 40 p.

★ ★ ★ ★ ★ **13**<sup>th</sup> Year of Excellence ★ ★ ★ ★ ★