



## Market Potential of Value Added *Khadi* Products

**Saroj Yadav**

Asstt. Scientist, Dept. of TAD, IC College of Home Science, CCSHAU, Hisar-125004.

**Geeta Gaba**

Research Associate, Dept. of TAD, IC College of Home Science, CCSHAU, Hisar-125004

### ABSTRACT

Dyes are being widely used for embellishing textiles and in ancient times natural dyes were being used vastly for the purpose. But with the invention of synthetic dyes the use of natural dyes gradually went into oblivion as bright colours and shades with good fastness can be obtained with synthetic dyes in lesser time. Nowadays once again with the increased awareness of people about harmful effects of synthetic dyes, use of natural dyes as an alternative source geared up. Green minded and health conscious consumers go for fabrics dyed and printed with natural dyes. Keeping in view the importance of natural dyes in textile world a study was conducted to prepare value added screen printed file folders and to evaluate the market potential of developed products. Khaddar casement fabric in Beige colour was selected for preparation of screen printed file folders using Kachnar bark dye and Cassia tora gum. Designs were collected from secondary sources and five designs were selected according to the product and printing technique. Selected designs were refined in Corel DRAW software. Selected designs were placed in three different ways on file folders and total fifteen placements were prepared and five placements were selected for preparation of products. The printed products were further embellished with hand embroidery, machine embroidery and fabric painting. The developed products were assessed for their design, placement of design and embellishment technique. Results of the study revealed that the developed products were highly appreciated by the respondents in terms of selection and placement of designs, printing and surface enrichment techniques used. Cost of the products was assessed as appropriate by all the respondents.

### KEYWORDS

Screen printing, Kachnar bark, File folders, Value addition, Assessment.

### Introduction:

Dyeing is the art of imparting particular hues and tints to yarn, fabric and other material by employing coloring matter whereas, in printing, design and colour forms an artistic expression to embellish the fabric. The process of printing is used to achieve ornamentation and improve the aesthetic appeal of the final product. Stencil printing is the most widely adopted printing technique for incorporating designs on surface of any textile material.

Dyes are obtained from two main sources; natural sources and synthetic sources. Natural dyes can be defined as those organic materials that have the ability to impart colour to any substrate which they must have affinity for. Natural dyes are biodegradable and very compatible with the environment. They have beauty and depth of colour that cannot quite be obtained with synthetic dyes. These dyes can be obtained either from plants, animals, and minerals. Until the mid 19<sup>th</sup> century, all dyestuffs were made from natural materials, mainly vegetable matter. But the invention of synthetic dyes in 1856 drove the use of natural dyes into oblivion.

Frequent use of synthetic dyes and thickeners in textile industry is causing serious environmental pollution and in near future it will lead to serious ecological problems. In the recent years concern for environment and sustainable development has created an increasing interest in eco-friendly, biodegradable and non toxic rational products. Natural dyeing and printing can exhibit better biodegradability and generally have a higher compatibility with environment. Natural dyes and natural thickening agents appear to be ideal choice for consumers with eco concern. (Babel and Gupta, 2013).

Cotton is natural and environment friendly fabric which does not harm the environment as well as wearer so it has become the first choice of green minded people and also the people with great concern for environment like the products made with natural thing like fabric, dye or any other material that

has been used to make a particular product.

The growing niche market for sustainable products is prompting the reintroduction of natural dyes on a commercial scale. Thus it is advantageous to use eco- friendly dyes so as to avoid the release of toxic and banned amines. The use of dyes derived from natural resources such as plants, insects and minerals needs to be encouraged for preparation of products for green minded consumers. The growing public awareness has been expressed through an expanding premium market for goods and services that carry 'natural' or 'eco-safe' or 'green' or similar labels.

Hence, keeping in view the importance of natural dyes in apparel and textile industry the present study was carried out with an objective: To prepare screen printed products of natural dye and natural thickening agent and assess their market potential.

### Methodology:

**Collection and selection of designs:** For collection of designs books, journals, photographs and internet etc. were explored and sixty designs were collected keeping in mind the suitability of designs for the product as well printing technique i.e. screen printing. In order to know the preferences of experts for selected designs their opinion was sought on three point continuum scale i.e. highly preferred, preferred and least preferred. Weighted mean scores were calculated and ranks were assigned on the basis of weighted mean scores. On the basis of the ranks, top ranked five designs were selected and were used for further work.

**Refinement of designs:** To get the required intricacy and fineness, selected designs were refined/ recreated in Corel DRAW software.

**Preparation of placements:** Fifteen design placements i.e. three placements of each design were developed using five selected designs with the help of Corel DRAW software.

**Selection of placements:** The prepared design placements were got evaluated from a panel of thirty experts and preferences were sought on three point continuum scale i.e. highly preferred, preferred and least preferred. Weighted mean scores were calculated and on the basis of weighted mean scores, ranks were assigned to each placement. The placement which secured rank I for each design was selected for further work, hence total of five placements were selected.

**Preparation of screens:** Screens of selected five design placements were got prepared.

**Selection of Dye and thickener:** On the basis of results of printing of cotton with *Kachnar* bark using *Cassia tora* gum (2014-15), *kachnar (Bauhinia variegata)* bark dye was selected for preparation of file folders through screen printing technique. *Cassia tora* gum was used as thickener for printing.

**Selection of Fabric:** *Khaddar* casement fabric in Beige colour was selected for preparation of products.

**Printing of products:** Screen printing was done as per the standardized procedure and total twenty file folders were printed for further work.

**Value addition of printed products:** Three surface enrichment techniques i.e. hand embroidery, machine embroidery and fabric painting were used for value addition of printed products. Products of each design were enriched with selected techniques and one sample was kept as control i.e. printing only.

**Calculation and assessment of cost of developed products:** Cost of developed products was calculated on the basis of cost of raw material, embellishment charges and finishing charges. Cost of prepared articles was got assessed from thirty respondents whether appropriate, high or low. Frequencies and percentages were calculated to draw the inferences.

**Assessment of developed products:** The developed products were exhibited in well lightened lab. of Department of Textile and Apparel Designing, I.C. College of Home Science, CCSHAU, Hisar and got assessed from thirty respondents comprising of faculty members and PG students of I.C. College of Home Science, CCS Haryana Agricultural University, Hisar on the basis of designing parameters and overall appearance. The opinion of the consumers regarding developed products was sought using self-developed opinion scale. All features were assessed using three point rating scale.

**Results and Discussion:**

**Collection and selection of designs for file folders:**

Total sixty designs were collected from secondary sources like books, journals and internet etc., keeping in mind their suitability for screen printing on file folders. The collected designs were shown to experts for selection of designs for screen printing on file folders. Out of collected sixty designs, five designs were selected on the basis of experts' preferences. As per the preferences of experts design number 4 was ranked I scoring 2.91 followed by design number 26 (2.90) ranked II, design number 16 (2.89) ranked III, design number 23 (2.87) ranked IV and design number 41 (2.80) ranked V. It is thus inferred that the preferred designs used for screen printing on file folders were design number 4, 16, 23, 26 and 41.

**Selected Designs for File Folder**

Design No.	Design	Weighted Mean Score	Rank
4		2.91	I
16		2.89	III
23		2.87	IV
26		2.90	II
41		2.80	V

**Placement of selected designs on file folders:** This section includes preferential choices of respondents for placements of selected five designs on bed covers. Total fifteen placements were made by placing selected five designs in three different ways on file folders. The data related to preferential choices of experts for placement of designs are presented in Table 1.

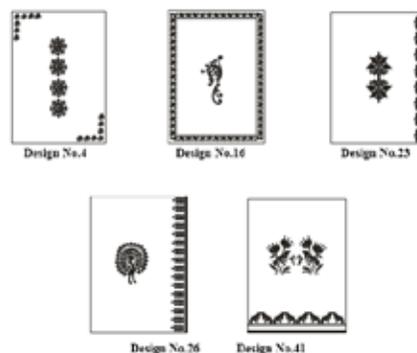
**Table 1: Preferences for placements of selected designs on file folders**

Design No.	Placement		
	I (WMS)	II (WMS)	III (WMS)
4	2.65	2.83	2.92
16	2.90	2.78	2.85
23	2.70	2.86	2.72
26	2.75	2.89	2.78
41	2.60	2.88	2.73

WMS= Weighted Mean Score

The data in Table 1 indicated that the most preferred placement for design number 4 was placement III scoring highest mean score 2.92. Design number 16 was most preferred in placement I scoring 2.90. Design number 23, 26 and 41 with placement II were preferred the most scoring 2.86, 2.89 and 2.88, respectively.

**Selected Placements for File Folders**



**Development of file folders:** A total of twenty file folders were developed through screen printing technique using selected designs and their placements. The printed articles were further embellished with hand embroidery, machine embroidery and fabric painting.

**Determination of the cost of developed products:** The cost of prepared products was calculated on the basis of expenses incurred on raw material, embellishment charges and finishing charges.

**Table 2: Cost of developed file folders**

Design Nos. Raw Material	Parameters/ Cost (Rs.)				
	Embellishment Charges	Finishing Charges	Total		
Design 4	A	65	---	70	135
	B	65	10	70	145
	C	65	20	70	155
	D	65	10	70	145
Design 16	A	65	--	70	135
	B	65	15	70	150
	C	65	25	70	160
	D	65	10	70	145
Design 23	A	65	---	70	135
	B	65	15	70	140
	C	65	25	70	160
	D	65	10	70	145
Design 26	A	65	---	70	135
	B	65	10	70	145
	C	65	20	70	155
	D	65	10	70	145
Design 21	A	65	---	70	135
	B	65	10	70	145
	C	65	20	70	155
	D	65	10	70	145

A= Printing Only, B= Printing+ Hand Embroidery, C= Printing + Machine Embroidery, D= Printing+ Fabric Painting

The data presented in Table 2 indicated that total cost of file folder prepared with printing only was Rs. 135/- whereas cost of file folders embellished with hand embroidery and fabric painting was Rs. 145/- and with machine embroidery cost was from Rs. 155 to 160/-.

**Consumers' opinion regarding the cost of developed file folders:** The developed file folders were got assessed by the consumers for the cost whether high, appropriate or low and data have been presented in Table 3.

**Table 3: Consumers' opinion regarding the cost of developed file folders (n=30)**

Developed File Folders	Total Cost (Rs.)		Opinion Regarding Cost	
	Appropriate		Frequency	Percentage
Design 4	A	135	30	100
	B	145	30	100
	C	155	30	100
	D	145	30	100
Design 16	A	135	30	100
	B	150	30	100
	C	160	30	100
	D	145	30	100
Design 23	A	135	30	100
	B	140	30	100
	C	160	30	100
	D	145	30	100

Design 26	A	135	30	100
	B	145	30	100
	C	155	30	100
	D	145	30	100
Design 41	A	135	30	100
	B	145	30	100
	C	155	30	100
	D	145	30	100

A= Printing Only, B= Printing+ Hand Embroidery, C= Printing + Machine Embroidery, D= Printing+ Fabric Painting

The data presented in Table 6 revealed that all the consumers rated cost as appropriate for developed file folders and none of them rated it as either high or low.

**Assessment of Products:** The developed products were got assessed for designing parameters i.e. designs used and placement of designs and suitability of surface enrichment techniques. The data related to assessment of developed products is presented in Table 4 and 5.

Designing Parameters:

**Designs:** The data elucidate that design number 41 was found most appealing as it scored highest (2.87) followed by design number 26 (2.80), design number 4 (2.67) design number 16 (2.63) and design number 23 (2.50).

**Placements of designs:** Placement of design number 41 (2.73) was found most appealing, followed by design number 26 (2.70) whereas placement of design number 23, 16 and 4 scored 2.63 each.

**Overall:** On the basis of average mean scores overall file folder of design number 41 was found most appealing scoring 2.80 and ranked I, followed by design number 26 (2.75), design number 4 (2.65), design number 16 (2.63) and design number 23 (2.56) at rank II, III, IV and V, respectively.

**Table 4: Assessment of developed products on designing parameters (n=30)**

Design No.	Designing Parameters		Over all	
	Designs	Placement of Design	AMS	Rank
	WMS	WMS		
4	2.67	2.63	2.65	III
16	2.63	2.63	2.63	IV
23	2.50	2.63	2.56	V
26	2.80	2.70	2.75	II
41	2.87	2.73	2.80	I

WMS- Weighted Mean Score AMS- Average Mean Score

Surface Enrichment Techniques:

The screen printed file folders of each design were enriched with three techniques i.e. hand embroidery, machine embroidery and fabric painting. The data pertaining to opinion of consumers regarding embellishment techniques is presented in Table 5.

The data revealed that developed file folders of design number 4, 16 and 41 were most preferred for printing embellished with hand embroidery scoring 2.50 and 2.33, respectively and ranked I. File folders of design number 23 and 26 were most preferred with printing only i.e. without embellishment.

On the basis of average mean scores file folders embellished with hand embroidery were preferred most scoring highest i.e. 2.33, followed by printing only (2.23), machine embroidery (1.97) and least preferred was fabric painting (1.90).

**Table 5: Assessment of developed products for surface enrichment techniques (n=30)**

De- sign No.	Print- ing Only (A)	Surface Enrichment Techniques						
		Printing + Hand Em- broidery (B)		Printing + Machine Embroidery (C)		Printing + Fabric Paint- ing (D)		
		WMS	Rank	WMS	Rank	WMS	Rank	
4	2.26	II	2.50	I	2.10	III	2.03	IV
16	2.20	II	2.50	I	1.93	III	2.00	IV
23	2.26	I	2.13	II	1.83	IV	2.03	III
26	2.26	I	2.23	II	1.86	III	1.73	IV
41	2.17	II	2.33	I	2.13	I	1.73	III
	<b>Average Mean Score</b> 2.23		Average Mean Score	2.33	<b>Average Mean Score</b> 1.97		<b>Average Mean Score</b> 1.90	

**Table 6: Opinion of the consumers regarding developed file folders (n=30)**

Statements	Developed file folders (WMS)				
	Design 4 WMS	Design 16 WMS	Design 23 WMS	De- sign 26 WMS	De- sign 41 WMS
The screen printed file folders are attractive and unique	2.73	2.65	2.73	2.83	2.83
Screen printing technique is innovative and as per trend	2.65	2.56	2.53	2.70	2.63
Colour combinations of embellishment technique used with base colour is appealing	2.56	2.53	2.66	2.60	2.70
Embellishment enhanced the effect of printing	2.65	2.53	2.50	2.70	2.60
The developed file folders are acceptable as per market trend	2.87	2.69	2.72	2.86	2.80
The developed products will have high marketability.	2.79	2.68	2.66	2.82	2.80
Average Mean Score	2.74	2.63	2.64	2.77	2.75

It is inferred from data in Table 6 that the consumers had very high opinion about the developed products in relation to the ‘screen printing technique used is attractive and unique’, ‘screen printing technique is innovative and as per trend’, ‘colour combinations of embellishment technique used with base colour is appealing’, ‘embellishment enhanced the printing effect’, the ‘developed products are acceptable as per trend’ and the ‘products will have high marketability’.

**Conclusion:**

Printing embellished with hand embroidery was most preferred.

The developed products will have high marketability.

Cost of the products was assessed as appropriate.

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