

# Diversification of Jute Fabric Through Product Development

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**Abstract:** *Jute known as the golden fiber once dominated the world market as a packing material. However, with the introduction of the more user friendly synthetic fibers, the demand for jute declined significantly. However with its advantageous properties of eco-friendliness, the use of this fibre can be promoted through diversification and development of value added products. Diversified products in the form of table-mats and table-runners have been made from jute decorative fabrics. With an objective to improve consumer acceptability value addition of the developed products has been done through printing and embroidery. A detailed consumer survey has been undertaken through a structured questionnaire and the data has been statistically analyzed using ANOVA test. Statistically significant difference has been found between the*

*respondent's acceptability of different techniques of finishing used for the table-mats. 60% of the respondents rated printing as a better method of surface ornamentation compared to appliquéing. The table-runners made from jute fabrics were preferred by the respondents who found them better than full length table-cloths.*

**Keywords:** Anova, Applique, Block Printing, Consumer Behaviour, Jute, Screen Printing, Table-Mats, Table-Runner.

## 1. Introduction

Jute was known as the golden fiber in the recent past, and India was one of the main producers of jute. The introduction of the more user-friendly synthetic fibers led to the closure of several jute mills. As a result of this, the use and demand of jute declined significantly.

With consumers demanding more eco-friendly and natural products, use of jute, a natural fibre with several advantageous properties (USAID/India, 1970; Bhargava, 2003; Koshy, 1992), becomes relevant in the current fiber scenario. Further, the jute industry can also become a potential source of employment generation for many (IJSG & UNCTAD, 2006; Sharma et.al, 2009). Use of jute as a fibre can be easily promoted with such advantages and market potential if coupled with effective marketing strategies (Bhardwaj, 1995; Sharma et.al, 2009). Also, the fibre can be popularized through diversification from its traditional end-uses to include suitable products like household textiles (table-mats and table-runners) (Banerjee, 2003; Basu et.al, 2003; Chakarbaty et.al, 2001; Majumdar, 2005).

Very few studies have been undertaken or investigated with regards to the diversified uses of jute, and even the ones that have been carried out have not been statistically analyzed to reveal the actual pattern of consumers' acceptance / preference of jute or products made from it (Arun, 2001; Babu B, 2010; Baruah, 1994; Sarkar et.al, 2001; Shrinivasan, 2007; Tikoo, 1991).

Therefore, in this present study, an initiative has been made to produce special

innovative jute products (table-mats and table-runners) with an objective to improve the consumers' acceptability of the fibre as well as the product thus designed. Table-mats and table-runners have been made from jute fibre fabrics using different finishing and textile ornamentation techniques (printing and embroidery) with the purpose to promote the use of jute. At the same time, attention has also been given to the design of the product in such a way that makes it capable of enhancing / improving the utility of the product even through repeated end-uses. A detailed consumer survey has also been undertaken to statistically and scientifically explain the consumer behavior as well as their opinion and preference with respect to the products developed from jute fibre fabrics.

## **2. Materials and Methods**

### **2.1 Fabric Selection Through a Preliminary Study**

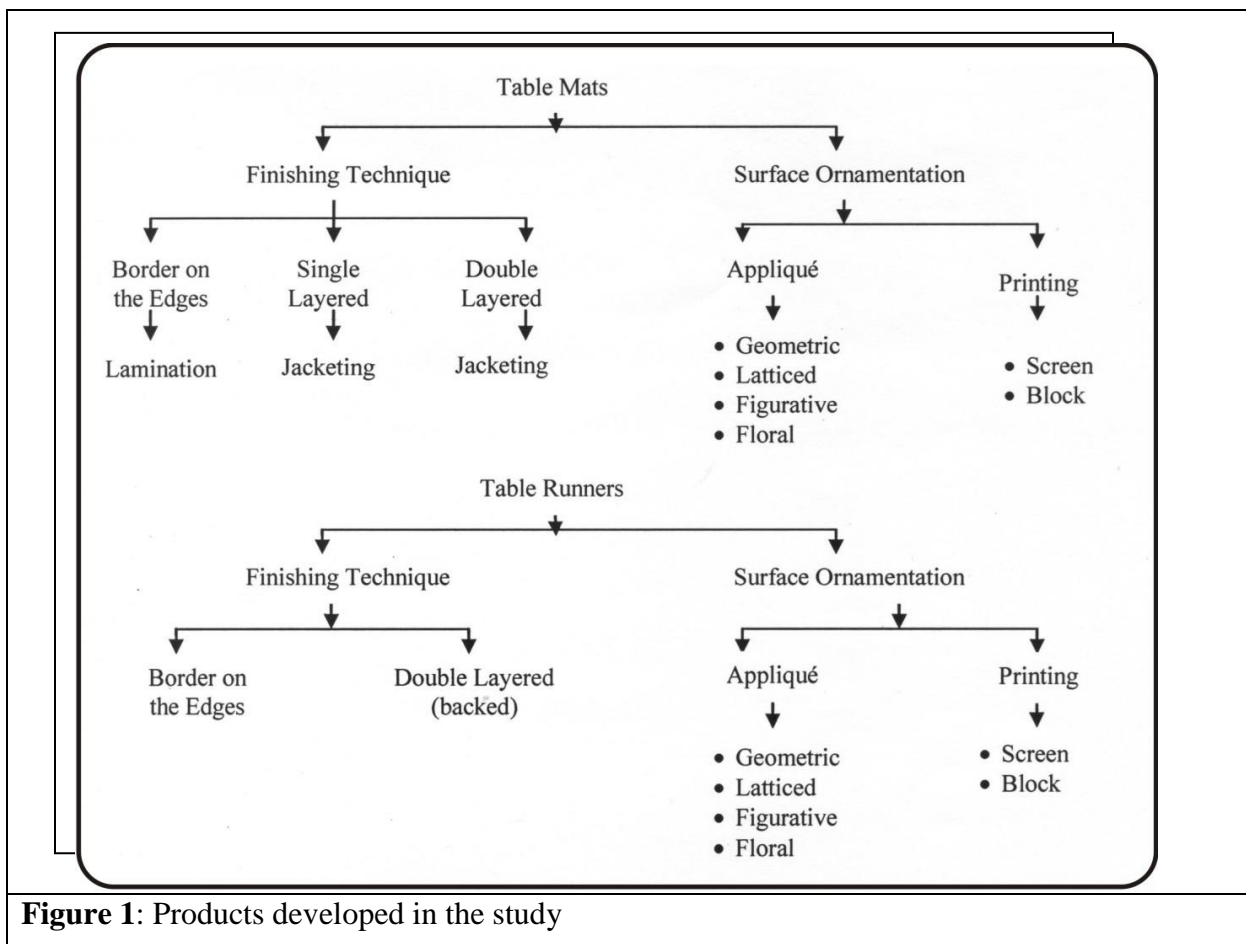
A preliminary study was undertaken to explore the various types of jute or jute/cotton union decorative fabrics available in the local markets. Based on their availability, fabrics with the following specifications were used in the present study.

Table 1: Specifications of various Jute Decorative and Plain Fabrics

Fabric Property	Decorative Fabrics	Plain Fabrics
Fabric Density	26-36 Warp & 14-24 Weft	15-22 Warp & 14-18 Weft
Fabric Weight (in g/m <sup>2</sup> )	346 - 407	259 - 335
Fabric Thickness (in mm)	1.33 - 1.63	0.77 - 0.91
Crease Recovery (in Degrees)	127 - 180	129 - 134
Flexural Rigidity (in mg.cm)	0.12 - 0.86	0.36 - 0.51

## 2.2 Products Developed

Various types of jute-table mats and jute-table runners were made from jute / jute-cotton union decorative fabrics in conjunction with or without matching coloured hessian fabrics. The following chart indicates the various products that were developed for the study.



**Figure 1:** Products developed in the study

## 2.3 Selection of Sample Group

A group of 60 respondents were selected randomly with an attempt to maintaining similar number of students, housewives and professionals. No distinction was made between the males and females respondents who varied in their age groups and family monthly income. A structured questionnaire was prepared for the collection of relevant data.

#### 2.4 Collection and Analysis of Data

The prepared table-mats and table-runners were displayed and exhibited systematically along with the codes. The questionnaire was photocopied and distributed to the respondents who were asked to give their feed-back on the displayed products. The collected data was analyzed using percentage and ANOVA.

### 3 Results & Discussions

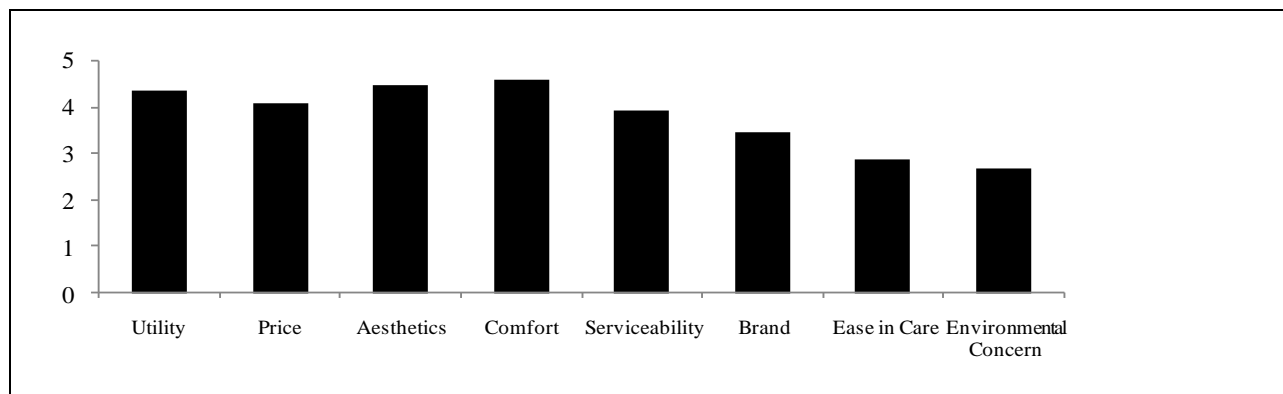
#### 3.1 General Purchasing Behavior of the Respondents

Figure 1 shows the general purchasing behavior of the respondents. Among the factors influencing the purchasing behavior of the respondents, the following order of preference of the respondents was noted:

Comfort > Aesthetics > Utility > Price  
> Serviceability >

Ease in care > Environmental concern

This data revealed that the respondents rated comfort and utility apart from the aesthetic look of the product as factors for consideration while purchasing products. They cared less for the durability of the product or the impact it had on the environment while making purchases.



**Figure 2:** General purchasing behavior of the respondents (in terms of average scores out of a total score of five)

### 3.2 General Awareness of the Respondents Regarding Availability of Products Made from Jute

It was found that all the respondents (100 per cent) were aware of jute as a textile fibre and 78.43 per cent of the respondents knew about the availability of products made from it. A large number of respondents were already using jute products either for decorative or for its utilitarian purpose. Very few of the respondents (70.58 per cent) rated the jute products to be a fashion statement.

### 3.3 Preference of the Selected Jute Based Decorative Fabrics

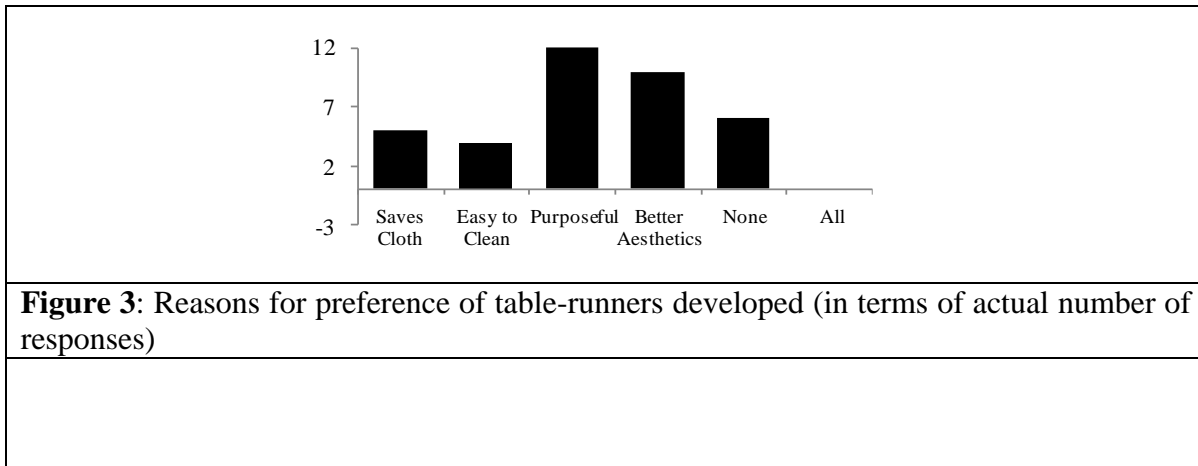
It was found that there was no statistical difference between the respondents' preference for the different fabrics at 5% level of significance (Table 2). This result implies that though the respondents' preference (in terms of a total score of five) of the jute decorative fabrics were different, the variations in the scores are statistically significant.

Table 2: Respondents' Preference for the Different Fabrics

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Sum of Squares	F (Computed)	F (Tabulated)
Between Fabrics	0.88	5	0.176	1.017	2.53
Error	4.14	24	0.173	-	-
<b>Total</b>	<b>5.02</b>	<b>29</b>	-	-	-

### 3.4 Reasons for Purchase of Table Runners

As indicated by Figure 3, the respondents rated aesthetics and purposefulness as reasons for their preference of table-runners. They did not prefer table-runners due to the use of less fabric in making them. Thus according to them table runners would probably be able to protect the table tops and would serve as a better option than a full length table cloth.



**Figure 3:** Reasons for preference of table-runners developed (in terms of actual number of responses)

### 3.5 Preference of Finishing Technique Used for Making Table Mats and Runners

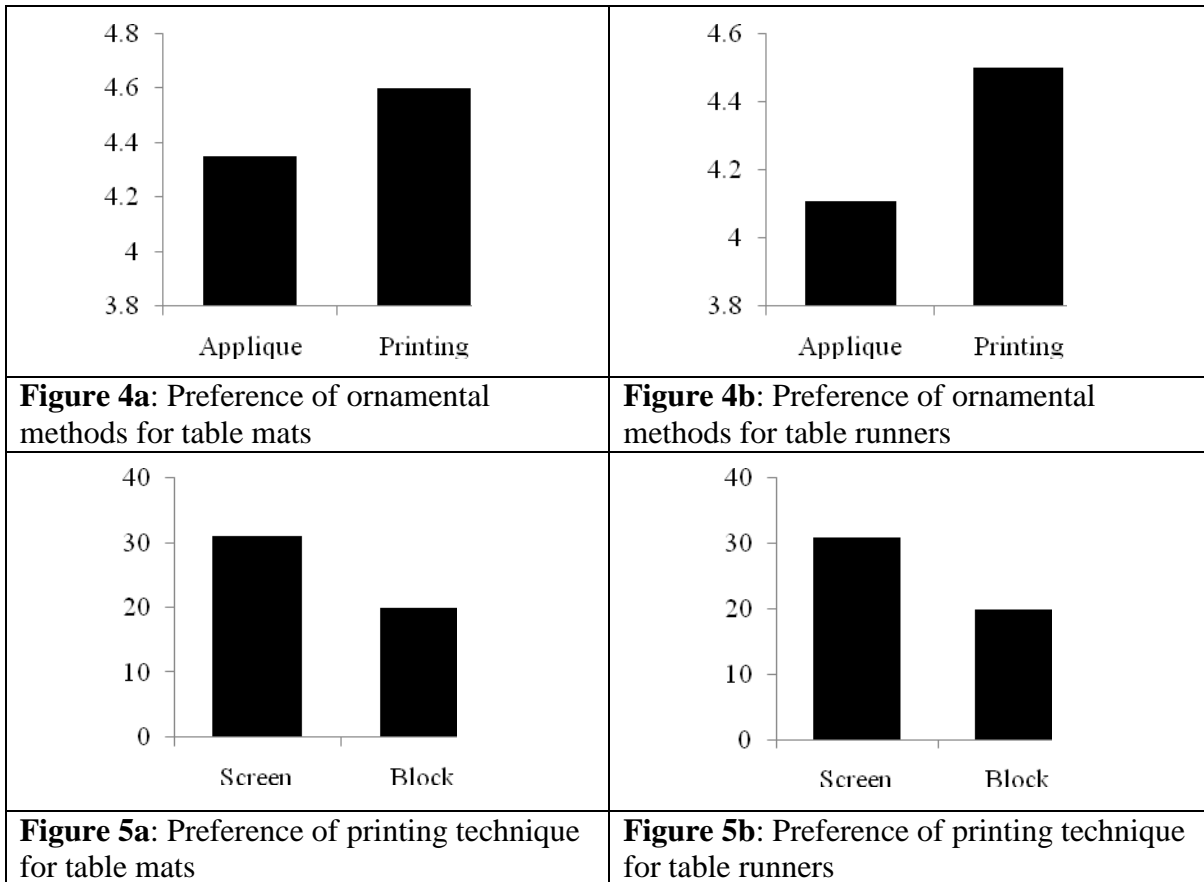
Mats and runners finished with a border on the edge were preferred more than the backed ones by the respondents (Table 3).

Table 3: Respondents' Preference for Finishing Technique Used

Finishing Techniques	Average Scores (Out of a total score of 5)
<b>Table Mats</b>	
Edging on the borders	3.73
Backing	3.10
<b>Table Runners</b>	
Edging on the borders	5.23
Backing	4.07

### 3.6 Preference of Ornamental Methods for Table Mats and Runners

It was found that for both the developed products i.e., table mats and runners, printing was preferred over appliqué as an ornamental method used to add value to the products developed (Figure 4a and 4b).



Also among the two methods of printing, respondents preferred screen printing over block printing for both table runners and mats (Figure 5a and 5b).

#### 4 Conclusion

The respondents like the sets of table-mats with matching table-runners. They felt that jute based fabrics could be used to make a variety of household articles whose value could be further enhanced through various textile surface ornamentation techniques

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