

**THE INFLUENCE OF FABRIC PROPERTIES ON GARMENT SEWING TECHNOLOGY: THE
CASE OF ADRAS, BEKASAM, AND SILK**

Jabborova Dilshoda Xolmamat qizi

**3rd-year student majoring in "Technological Education" at Termez State
Pedagogical Institute; email: Jabborova48@gmail.com**

Abstract

This thesis examines the influence of the physical, mechanical, technological, and aesthetic properties of fabrics on garment manufacturing technology using adras, bekasam, and silk as representative examples. Particular attention is paid to fiber composition, surface structure, density, slipperiness, extensibility, crease behavior, and sensitivity to heat and moisture, since these characteristics directly affect garment design, cutting, sewing, and pressing operations. The study shows that the correct alignment of decorative patterns, appropriate selection of seam type, needle and thread parameters, and consideration of deformation behavior are especially important when working with traditional Uzbek fabrics. The results indicate that preliminary evaluation of material properties is essential for ensuring technological quality, dimensional stability, durability, and aesthetic integrity in contemporary garments made from traditional textiles.

Keywords: fabric properties, adras, bekasam, silk, garment technology, cutting, seam, deformation, pressing, traditional textiles.

Аннотация

В тезисе рассматривается влияние физических, механических, технологических и эстетических свойств тканей на технологию изготовления одежды на примере адраса, бекасама и шелковых тканей. Проанализировано влияние волокнистого состава, структуры поверхности, плотности, скольжения, растяжимости, сминаемости, а также реакции тканей на тепло и влагу на процессы конструирования, раскроя, пошива и влажно-тепловой обработки изделий. Особое внимание уделено правильному расположению орнамента, выбору вида шва, параметров иглы и ниток и учету деформационных свойств национальных тканей. Результаты показывают, что предварительная оценка

свойств материала является одним из важнейших условий обеспечения качества, долговечности и эстетической выразительности современной одежды из традиционных тканей.

Ключевые слова: свойства ткани, адрас, бекасам, шелк, технология швейного производства, раскрой, шов, деформация, влажно-тепловая обработка, национальная ткань.

Annotatsiya

Ushbu tezisda gazlamalarning fizik-mexanik, texnologik va estetik xossalarining kiyim tikish jarayoniga ta'siri adras, bekasam va shoyi matolari misolida tahlil qilingan. Mazkur gazlamalarning tolaviy tarkibi, sirt tuzilishi, zichligi, sirpanuvchanligi, cho'ziluvchanligi, burishuvchanligi hamda issiqlik va namlikka munosabati kiyim konstruksiyasini ishlab chiqish, bichish, tikish va namlab-issiqlik bilan ishlov berish bosqichlariga bevosita ta'sir ko'rsatishi asoslangan. An'anaviy matolar bilan ishlashda naqsh yo'nalishini to'g'ri joylashtirish, chok turini va igna-ip parametrlarini maqbul tanlash, shuningdek, gazlamaning deformatsiyalanish xususiyatlarini hisobga olish zarurligi yoritilgan. Tadqiqot natijalari milliy matolardan zamonaviy kiyimlar tayyorlashda texnologik sifat va estetik yaxlitlikni ta'minlash uchun gazlama xossalarini oldindan baholash muhim ekanini ko'rsatadi.

Kalit so'zlar: gazlama xossalari, adras, bekasam, shoyi, tikuvchilik texnologiyasi, bichish, chok, deformatsiya, namlab-issiqlik bilan ishlov berish, milliy mato.

Introduction

In garment manufacturing technology, fabric is not merely a material that determines appearance; it is one of the principal factors that influences the construction of the garment, the sewing method, the equipment used, and the processing regime. The same garment model produced from different fabrics may differ considerably in shape retention, drape, seam appearance, and performance. For this reason, the technological properties of the material should be evaluated at the earliest stage of garment design.

Among traditional Uzbek textiles, adras, bekasam, and silk occupy a special place. These fabrics are distinguished by their vivid colors, complex patterns, distinctive surface structures, and high aesthetic value. Today, they are used not only for traditional clothing but also for contemporary dresses, suits, jackets, skirts, accessories, and designer collections. However, their technological behavior is not identical. The relatively structured character of adras, the striped and often denser

structure of bekasam, and the smooth and slippery surface of silk require different technological approaches.

Fabric thickness, surface density, extensibility, friction, yarn mobility, and crease behavior directly affect cutting accuracy and seam quality. In addition, the response of a material to heat and moisture is crucial when selecting an appropriate pressing and shaping regime. Therefore, a comparative examination of adras, bekasam, and silk is practically significant for the production of high-quality garments from traditional materials.

Main Part

The fabric characteristics that influence garment sewing technology can generally be grouped into physical, mechanical, technological, and aesthetic properties. Each group becomes particularly important at a different stage of production.

First, fiber composition is a fundamental parameter. It affects strength, moisture absorption, elasticity, thermal resistance, and dimensional stability. Fabrics containing natural silk may react negatively to excessive heat or moisture: the surface may become shiny, color may change, and local deformation may occur. Therefore, silk fabrics should be pressed at a lower temperature and, where necessary, through a protective pressing cloth.

Adras is traditionally characterized by its colorful abr-patterned design. One of its most important technological features is the visual rhythm of the motif on the surface. During cutting, the relationship between pattern elements on adjoining garment pieces must be carefully controlled. If motifs are interrupted abruptly at the center front, side seams, sleeves, or other visible areas, the finished garment may lose its compositional balance.

In some varieties of adras, the physical behavior of warp and weft yarns differs. As a result, the material may stretch differently in different directions. Pattern pieces should therefore be aligned correctly with the grain. Failure to respect the warp direction can cause twisting, distortion of side seams, or uneven hems during wear.

Cutting several layers of adras at once can improve production efficiency, but increasing the number of layers also increases the risk of pattern displacement. For high-quality garments with complex decorative motifs, it is often more appropriate to use fewer layers or to cut important visible pieces individually.

Bekasam is distinguished by characteristic longitudinal stripes and alternating colors. Its principal technological requirement is the careful control of stripe alignment. If the

stripes are positioned inconsistently, the finished garment may appear visually unbalanced even when the construction itself is technically correct.

In garments made from bekasam, the stripes should be positioned symmetrically relative to the center line whenever the design requires symmetry. This is particularly important for front panels of dresses, jackets, traditional robes, and similar garments. Bekasam may also be denser than some varieties of adras, which can help the garment maintain structure but can create excessive thickness at seam intersections.

At shoulders, collars, pocket areas, and other points where several layers meet, seam bulk should be controlled by appropriate seam allowance, grading, trimming, and careful shaping of corners. Without such measures, the seam may remain rigid and bulky even after pressing.

Silk is among the most demanding materials from a technological point of view. Its smoothness, low surface friction, and thin structure can complicate cutting because layers shift easily and individual pieces may deviate from the pattern outline. The cutting surface should therefore be flat, the fabric should not be stretched, and the material should be stabilized sufficiently during cutting.

Bias-cut silk pieces require additional attention because they deform more easily. They should be handled with minimal tension and allowed to stabilize before final joining when necessary. Needle selection is equally important. A thick or blunt needle can leave visible holes or damage fine fibers, whereas a fine, sharp needle generally produces a cleaner seam.

Thread size should correspond to the fabric thickness. Excessively dense stitching can cause seam puckering in silk, while an overly long stitch may reduce seam strength. Trial stitching on a fabric sample before sewing the actual garment is therefore a practical way to establish suitable parameters.

Yarn slippage is another property that affects garment durability. Areas subjected to repeated mechanical stress, such as the armhole, elbow, side seam, and waist region, may show yarn displacement over time. This effect can be noticeable in silk and in some types of adras. Such areas may require seam reinforcement or a garment construction that avoids excessive localized tension.

Crease behavior also affects both appearance and comfort. Fabrics that crease easily may not be suitable for extremely close-fitting constructions unless the design intentionally accommodates that behavior. Material properties should therefore be considered together with the garment silhouette, wearing conditions, and expected level of maintenance.

Pressing and other forms of wet-heat treatment are among the most important finishing stages in garment production. Pressing is used to flatten seams, shape components, and give the garment its final appearance. However, identical temperature and moisture settings cannot be applied to all materials. Silk requires more cautious pressing, while adras and bekasam should be treated according to their exact fiber composition. Testing the selected pressing regime on a small fabric offcut before processing the garment is a simple and reliable preventive measure.

Ignoring fabric properties can lead to several common defects: seam puckering, distortion of garment pieces, misalignment of motifs or stripes, visible needle marks, excessive seam bulk, and unwanted shine caused by pressing. Therefore, the principle 'material first, technology second' is especially relevant when working with traditional textiles. The garment design and technological sequence should be adjusted to the actual behavior of the fabric rather than forcing different materials into the same production regime.

Fabric	Key characteristic	Main technological requirement
Adras	Patterned, structured, direction-sensitive	Match motifs carefully and preserve grain direction
Bekasam	Striped, comparatively dense	Maintain stripe symmetry and control seam bulk
Silk	Thin, smooth, slippery	Use fine needles, careful cutting, and lower-temperature pressing

The growing use of traditional fabrics in contemporary fashion means that their technological parameters must be considered just as carefully as their decorative qualities. In particular, combining traditional textiles with modern garment constructions requires prior assessment of mechanical behavior, dimensional stability, and compatibility with the intended sewing and finishing processes.

Conclusion

Fabric properties directly influence every major stage of garment production. Adras, bekasam, and silk differ in fiber composition, surface structure, density, pattern characteristics, friction, and deformation behavior; consequently, a single technological regime cannot be applied effectively to all three materials.

For adras, pattern alignment and grain direction are especially important. For bekasam, stripe symmetry and control of seam thickness are key technological concerns. For silk, the most important factors are slipperiness, fineness, needle selection, stitch regulation, and sensitivity to heat.

The analysis confirms that taking material properties into account from the design stage through final pressing helps reduce production defects and improve garment quality. Proper selection of needle, thread, seam type, cutting method, and wet-heat treatment not only increases technological reliability but also improves durability and aesthetic value.

Accordingly, contemporary garments made from adras, bekasam, and silk should combine respect for traditional textile aesthetics with a scientifically grounded technological approach. Such an approach makes it possible to preserve the visual identity of national fabrics while meeting modern requirements for quality, comfort, and production efficiency.

References

- Carr, H., & Latham, B. (2008). The technology of clothing manufacture (4th ed.). Blackwell Publishing.
- Fan, J., & Hunter, L. (2009). Engineering apparel fabrics and garments. Woodhead Publishing.
- Glock, R. E., & Kunz, G. I. (2005). Apparel manufacturing: Sewn product analysis (4th ed.). Pearson Prentice Hall.
- Kadolph, S. J. (2014). Textiles (12th ed.). Pearson.
- Saville, B. P. (1999). Physical testing of textiles. Woodhead Publishing.
- Sinclair, R. (Ed.). (2015). Textiles and fashion: Materials, design and technology. Woodhead Publishing.
- Tortora, P. G., & Merkel, R. S. (1996). Fairchild's dictionary of textiles (7th ed.). Fairchild Publications.