

Clothing and TEXTILES

UTAH STATE UNIVERSITY COOPERATIVE EXTENSION

FROM FIBER TO FABRIC: COTTON

INTRODUCTION

Even though it is produced in over 90 countries, cotton is the most commonly used fiber in the United States. Cotton is a plant-based fiber composed primarily of cellulose. Once the fibers are cleaned and prepared, cotton is sorted by fiber length, color and cleanliness (Cohen & Johnson, 2012). Longer fibers result in stronger fabrics with a more luxurious hand, luster and are rated as higher quality. Typically, luxury items use longer fiber fabrics. Examples include: sweaters, blouses, towels, and sheets. Everyday items that are more affordable often use shorter cotton fibers such as t-shirts, jeans, and other mass produced items (Kadolph, Langford, Hollen & Saddler, 1993).



Figures 1 and 2: Cotton boll.

Cotton has always been an important fiber. The use of cotton was first documented in China, Egypt, India, Mexico, and Peru. Settlers in the Southern Colonies (now known as the United States) were the first to grow cotton in the U.S. Before Eli Whitney's invention of the cotton gin, every ounce of cotton had to be hand sorted and cleaned. Each cotton worker could only produce approximately one pound of clean cotton per year. Once the cotton gin became widely used, approximately 50 pounds of cotton could be cleaned per day (Kadolph, Langford, Hollen & Saddler, 1993). Today, cotton is produced at a rate of approximately 125 million bales each year (Cohen & Johnson, 2012). Further, the cotton production industry (from farming to manufacturing) is seen as a key economic development strategy for developing and established countries.



Figure 3. Cotton thread.



Figure 4: Cotton fabric.



Figure 4: Cotton Shirting.

ADVANTAGES OF COTTON FABRIC:

- Good strength
- Abrasion resistant
- Hydrophilic: absorbs moisture readily and dries quickly, making it cool in warm weather
- Stronger when wet
- Fair drape
- Soft hand (the feel of a fiber, yarn, or fabric to the wearer)
- Inexpensive
- Machine washable (unless prohibited by manufacturer due to added finishes to the fiber/fabric)

DISADVANTAGES OF COTTON FABRIC:

- Poor elasticity
- Poor resiliency (fabric does not return to original shape or form after being altered)
- Little luster (reflection of light on fabric)
- Fabric pills easily (lint forms due to short fiber length)
- Susceptible to shrinking
- Wrinkles easily

END USES OF COTTON FABRIC:

- Wide range of apparel (shirts, blouses, pants)
- Interior fabrics (drapes, sheets, towels)
- Industrial uses (medical supplies, book bindings, luggage)



Figures 5 and 6: Fiber content and care label for cotton fabric.



REFERENCES:

- Cohen, A.C., & Johnson, I. (2012). *J.j. pizzuto's fabric science* (10th ed.). New York: Fairchild Books.
- Kadolph, S.J., Langford, A.L., Hollen, N., & Saddler, J. (1993). *Textiles* (7th ed.). New York: Macmillan Publishing Company.
- National Cotton Council. (n.d.). *Cotton counts educational resources*. Retrieved May, 15, 2012 from <http://www.cotton.org>.

Kate Black, USU Extension Intern
Lindsey Shirley, PhD, Clothing and Textiles Specialist

Sarah Hatch, USU Extension Intern
Jacqueline Hatch, USU Extension Intern



UtahStateUniversity
COOPERATIVE EXTENSION

Utah State is an affirmative action / equal opportunity institution.



FIBER & FABRIC
BASICS

Wcj "Ucv'Wpkgtuk\ 'ku'eqo o kvf "v' r tqxf lpi "cp'gpxkqpo gpv'htgg'htqo "j ctuuo gpv'cpf "qvj gt'hqto u'qh'kngi cni' f kuetko kpcvkqp'dcugf "qp'tceg."eqmt.'tgrki kqp.'ugz.'pvcvkpcn'qtki kp.'ci g'62"cpf "qif gt+ 'f kucdkk\.'cpf 'xgvtcpau'ucwu0 WUWau'r qre{ "cnuq'r tqj ldku'f kuetko kpcvkqp'qp'vj g'dcuku'qh'ugz.wcn'qtkpvcvkqp'kp'go r nq{ o gpv'cpf "cecf go le'tgrv'gf " r tcevegu"cpf "f gekukqp0 "

Wcj "Ucv'Wpkgtuk\ "go r nq{ ggu'cpf "uwf gpw'ecppqv."dgecwug'qh'tceg."eqmt.'tgrki kqp.'ugz.'pvcvkpcn'qtki kp.'ci g." f kucdkk\.'qt'xgvtcpau'ucwu."tghwug'q'j k g=f kiej cti g=r tqo qv=f go qv=vgtto kpcv=f kuetko kpcv'kp'eqo r gpucvkqp= qt'f kuetko kpcv'k'gi ctf lpi "vgtto u.'r tkxkngi gu."qt'eqpf kkpqu'qh'go r nq{ o gpv.'ci ckpu'cp{ 'r gtuaq'qvj gty kug's wcn'k'gf 0' Go r nq{ ggu'cpf "uwf gpw'cnuq'ecppqv'f kuetko kpcv'kp'vj g'encuatqgo . 't'gukf gpeg'j cmu."qt'kp'qp'qh'eco r wu.'WUW ur qpuqtgf "gxgpw'cpf "cevkxkku0 "

Vj ku'r wdrkcvkp'ku'kuwgf 'kp'hwvj gtcpeg'qh'Eqqr gtcv'x'Gz'v'g'puk'p'y qtm'cew'qh'O c{ ': "cpf 'Lxpg'52.'3; 36.'kp" eqqr gtcvkqp'y kj 'vj g'WUOF gr ctwo gpv'qh'Ci tlewnwtg.'P qng'GOEqengw.'Xleg'Rt'gukf gpv'ht'Gz'v'g'puk'p'cpf " Ci tlewnwtg.'Wcj "Ucv'Wpkgtuk\ 0HE IEqvj lpi (Vgz'v'gu4234/45r t+ "