USING THE COTTON MANAGEMENT SYSTEM™ TO MINIMIZE RAW MATERIAL COSTS AND MAXIMIZE QUALITY

• Michael Watson – Fiber Competition Division
SPINNING JENNY
INDUSTRIAL REVOLUTION
EARLY RING SPINNING ...1880’S
MODERN RING SPINNING
OPEN END SPINNING
400 METERS/MINUTE PER POSITION
MANUAL CLASSING
Costs of Making Yarn

- Fiber represents more than 60% of the cost of making yarn

Relative Costs of Manufacturing Ring-Spun Yarn in China

- Fiber: 62%
- Power: 12%
- Capital: 11%
- Waste: 10%
- Other Mat.: 12%
- Labor: 6%
A HISTORICAL PERSPECTIVE OF HIGH VOLUME INSTRUMENT DEVELOPMENTS IN THE U.S.

By
Preston E. Sasser
&
Jesse F. Moore

1992
Bremen Cotton Conference
Early USDA Interest in Instrument Classification

Work Started in 1930's

Colorimeter

Color Grades

Earliest model of the Colorimeter
Dorothy Nickerson, 1930's
1991

100% HVI Classing

Strength Premium & Discount Schedule
MILL FIBER QUALITY MEASUREMENTS
HVI DATA CAN BE OVERWHELMING
PBI TAG
BRAZIL AND CHINA PBI TAGS
HVI DATA CAN BE STILL BE OVERWHELMING
Engineered Fiber Selection®
System Software

MILLNet
MILLNet32™

Mills
Merchants
Co-ops

http://www.cottoninc.com/EFSSoftwarePrograms/
A Short History of EFS®

• Late 1970’s – Concept Developed
• 1981 – First Licensee
• 1988 – First International Licensee
• 1991 – 100% HVI® Classing of U.S. Crop
• Since 1994 – 8+ Million Bales Managed per Year
EFS® MILLNet Users Worldwide

- U.S. – 23
- Canada – 1
- Mexico – 11
- Colombia – 2
- Peru - 1

- China – 9
- Hong Kong – 2
- Korea – 3
- Thailand – 5
- Philippines – 1
- Vietnam - 1
• For both mix and inventory control
• Usually determined by growth area, staple length, end product, spinning system and/or crop year

Groups

Categories

• For both mix and HVI control
• Usually determined by spinning system, HVI distributions, end product, quality concerns, and/or blending efficiency
• Ranked in order of importance
Bale Tags
MILLNet Warehouse
EFS® Vs. Standard Mixes

Standard
Bales Random

EFS®
Mini-mixes

Overall Mix:

<table>
<thead>
<tr>
<th></th>
<th>MIC</th>
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EFS® Vs. Standard Mixes

Standard

EFS®

NUMBER OF BALES

MEAN

NUMBER OF BALES

MEAN

MIX 1

MIX 2

MIX 3

MIX 4

MIX 5

MIX 6

MIX BY DAYS
Raw Material Savings Using EFS® System Software

<table>
<thead>
<tr>
<th>Laydowns Per Day</th>
<th>Before EFS® System</th>
<th>After EFS® System</th>
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Yarn Strength G/T

- **92% Weaving Efficacy**
- **Average Yarn Strength Before EFS® System**
- **Average Yarn Strength After EFS® System**

Savings in $$$
EFS® Analytical Tools

- Bales: 878
- Mean: 4.108
- Std: 0.294
- CV%: 7.163
- Hi Out: 0
- Lo Out: 0

Micronaire Groups ALL

- 40 - 45 - 50 - 55 - 60 - 65 - 70 - 75 - 80 - 85 - 90
- 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17

US Up and Co Cat 8 8 bales
Avg Rd: 79.71, Avg +b: 8.89 (21-1), 100.00% of 878 possible
A FINAL WORD:
OUR "REAL" COMPETITION
Cotton’s Competition—Synthetic Fibers

SENSURA™. Modern technology combined with old-fashioned comfort for a fiber that’s better than natural...better than anything. And you can tell by just one touch.

A TRULY REVOLUTIONARY FIBER WITH BUILT-IN SOFTNESS, SMOOTHNESS, PERFORMANCE

Created by the innovation and imagination of Wellman, in partnership with Panipakoe, the world’s leading spin-off of cotton and synthetic yarns, Sensura is a fiber that feels like nothing ever felt before. It’s sensual and soft, resilient and durable. It’s naturally comfortable. Extremely luxurious. It dyes deeper. Holds color much longer. Offers excellent crease retention at lower temperatures, and provides amazing stability throughout the life of the garment. It’s kind to the skin and gentle on the environment. Which makes it precisely the right product for our time.

Sensura starts out softer, which differentiates it from natural fibers and today’s synthetics. It needs lower heat for dyeing and finishing, so there’s no stiffening of the fiber in the process. The result is an inherently soft, drapeable fabric. One that takes less dye-stuff, less energy, less water, less cost to produce. Sensura is the first synthetic fiber that has the feel of real.

Can you actually feel the difference? Instantly. Sensura was given a higher softness rating than combed cotton and polyester in both expert and general panel hand-rating tests. It has a gentle, soothing-on-the-skin feel that’s perfect for everything from casual sportswear to childrenswear to everydaywear.

As soft as it is, it’s strong on performance. Sensura dries twice as fast as cotton, and it’s up to speed with extreme high-tech fibers, too. It moves perspiration through the microclimate between skin and clothing, transporting it to the surface where it evaporates. So skin never gets clammy, never gets chilled. Ideal for active sports, Sunday sports, and weekend wear.

Sensura is the best of everything: for your sense of comfort, your sense of performance, your sense of style.

The apparel chosen to illustrate this trend new fiber is made of a variety of fibers, not necessarily a Wellman fiber. Sensura is a trademark of Wellman, Inc.