

COTTON NONWOVEN INNOVATIONS

Mac McLean
Cotton Incorporated
Cary, NC

This presentation will define Cotton Incorporated's role within the nonwoven industry specific to fiber, research, implementation and global product marketing. Recent product developments, related to the short-life nonwovens market sector, will be revealed involving processing and performance characteristics.

Cotton Nonwoven Innovations

2001 Beltwide Cotton Conference
International Nonwovens Symposium
January 12 - 13, 2001
Anaheim, California

Mac McLean

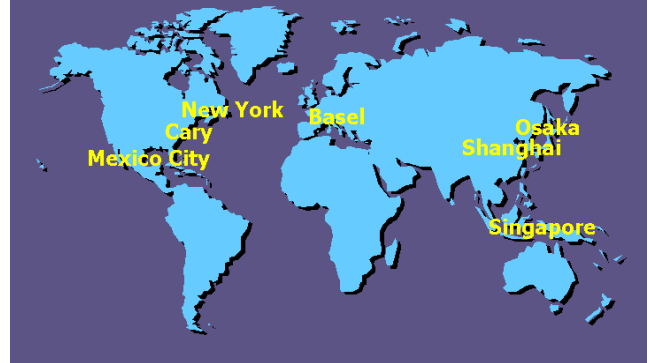


COTTON INCORPORATED

COTTON INCORPORATED
MISSION STATEMENT

To increase the demand
and profitability of
cotton through research
and promotion

COTTON INCORPORATED



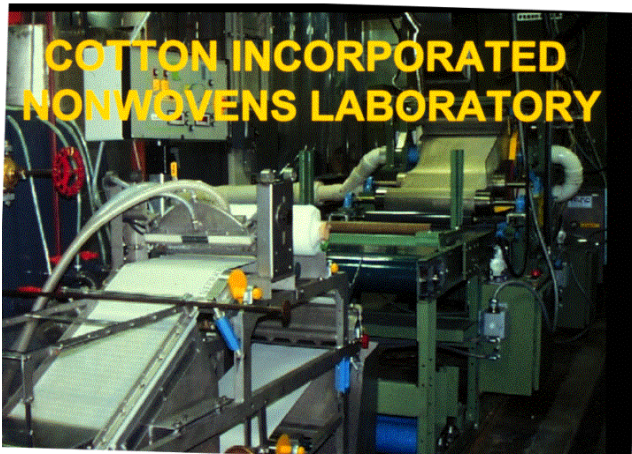
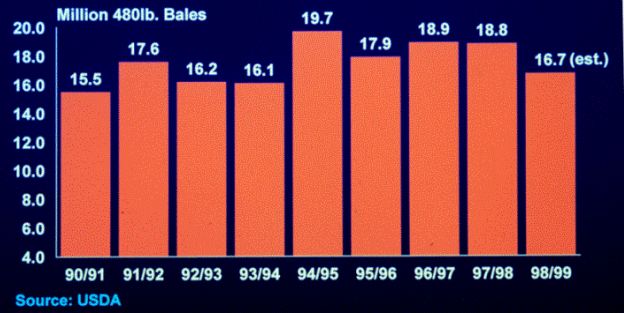
Cotton Incorporated
World Headquarters



TECHNICAL EXPERTISE

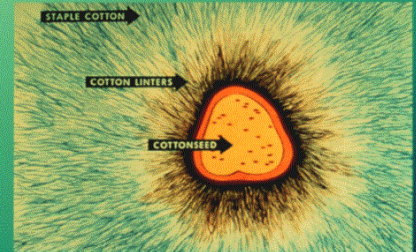
- Spinning and yarn research
- Shrinkage control for knitted fabrics
- Wrinkle resistant technology
- Non-wovens technology
- Dyeing and finishing
- Engineered fabric development
- Textile chemistry research
- Technical services to the industry

U.S. COTTON PRODUCTION



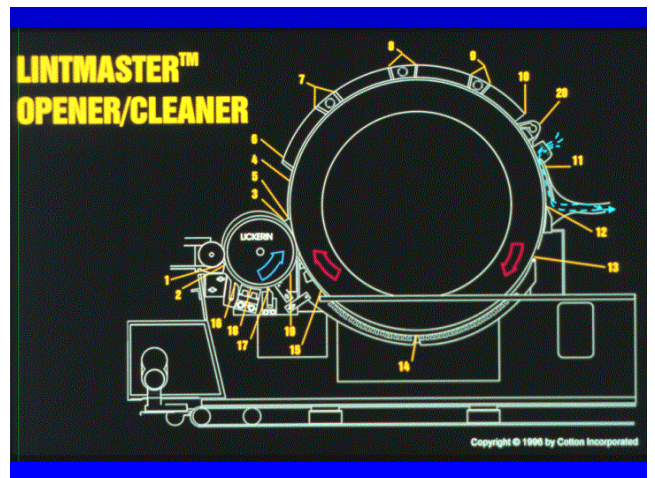
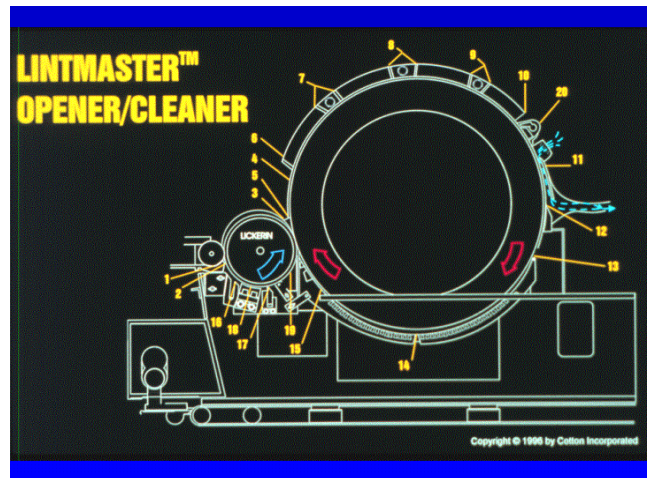
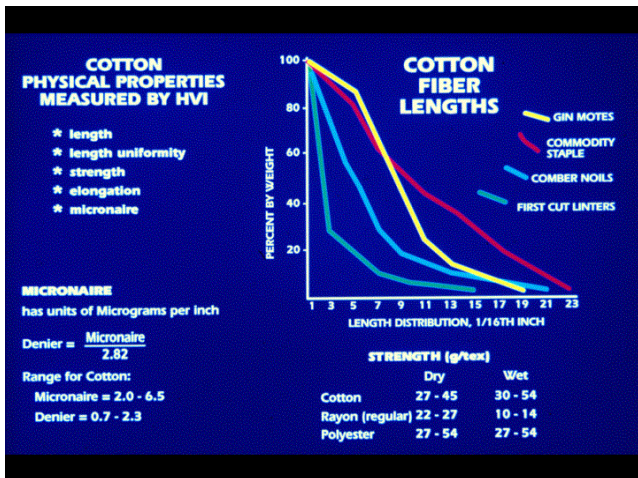
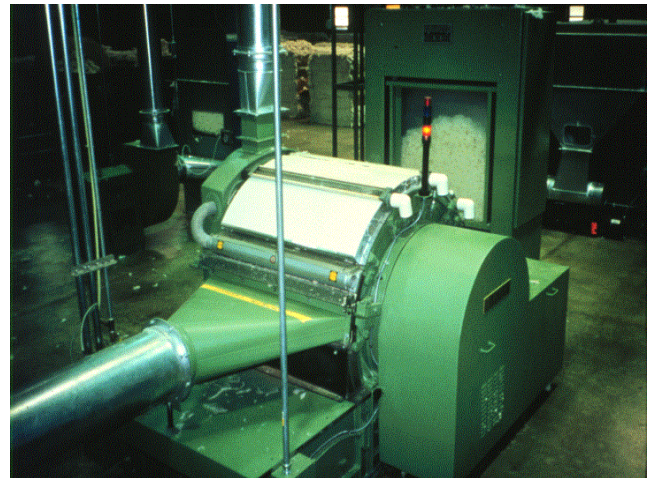
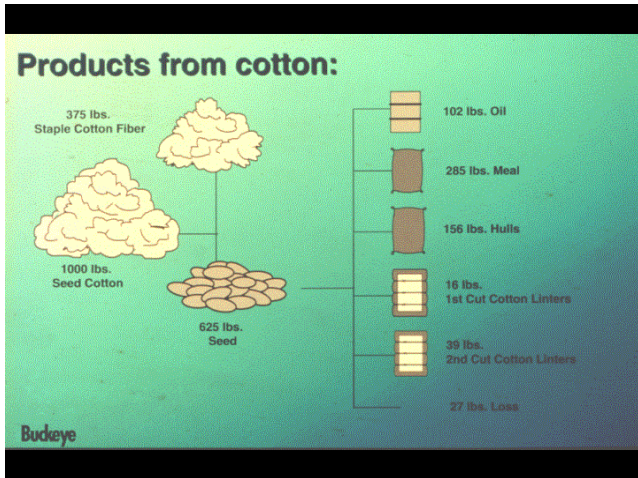
Two fibers grow from the cotton seed:

- Staple cotton
- Cotton linter



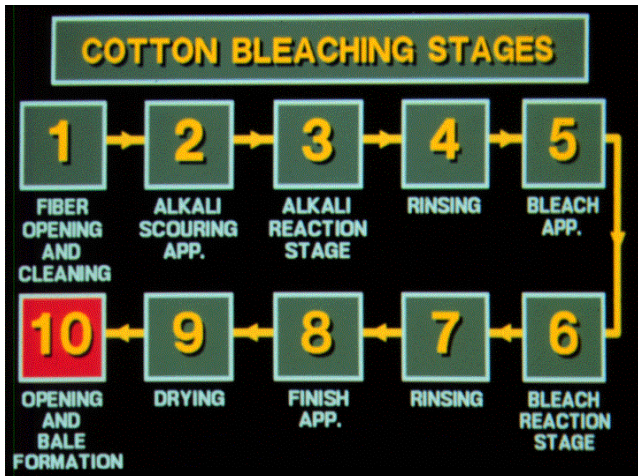
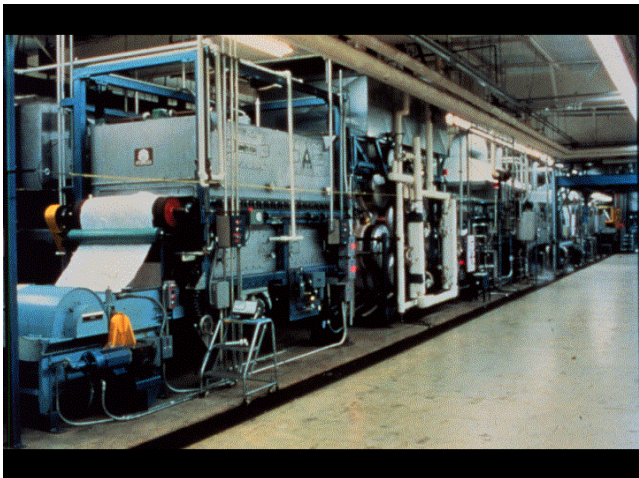
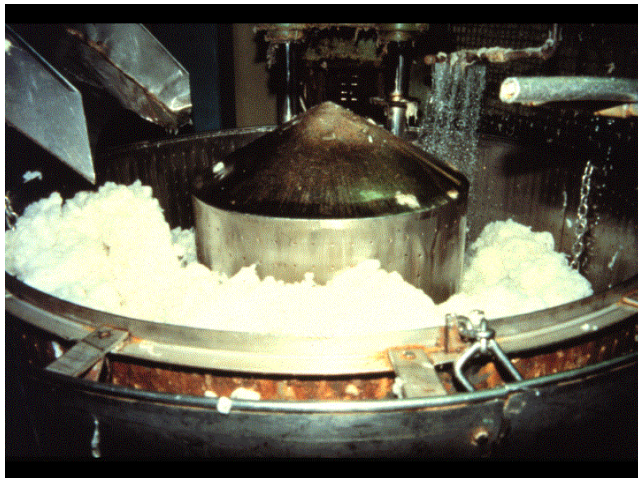
Buckeye





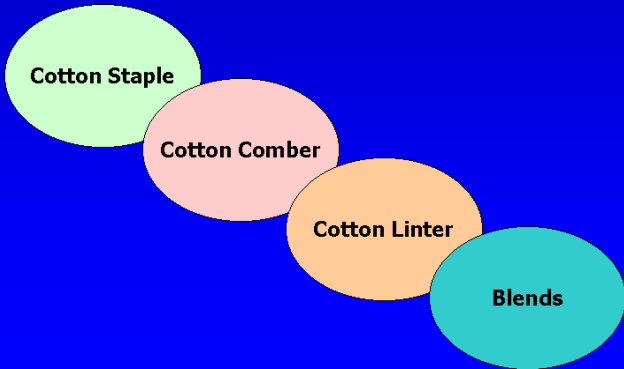


CONTINUOUS BLEACHED FIBER

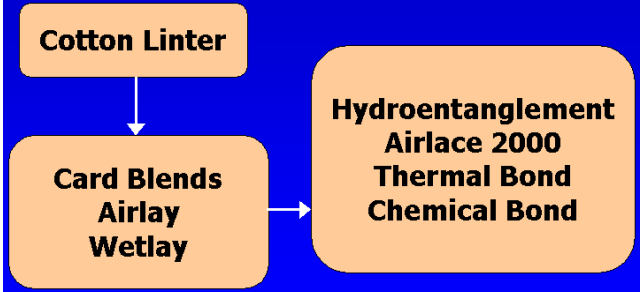


- ## COTTON PROPERTIES
- Absorbent
 - Breathable
 - Stronger when Wet
 - Biodegradable (under certain conditions)
 - Excellent Wicking
 - Sterilizable by All Industrial Methods
 - Low Static Potential
 - Printable
 - Dyeable
 - Chemically Modifiable
 - Renewable Resource
 - In Demand by Consumers

Cotton: Fiber to Fabric Transition

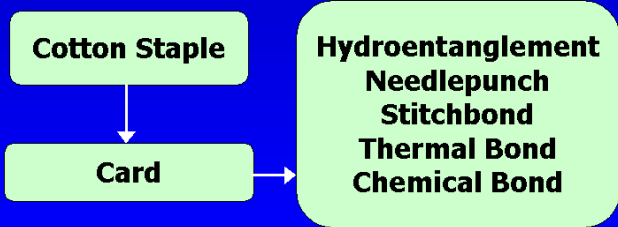


Cotton: Fiber to Fabric Transition



May include natural, bleached, and blended cotton with additional fiber types.

Cotton: Fiber to Fabric Transition

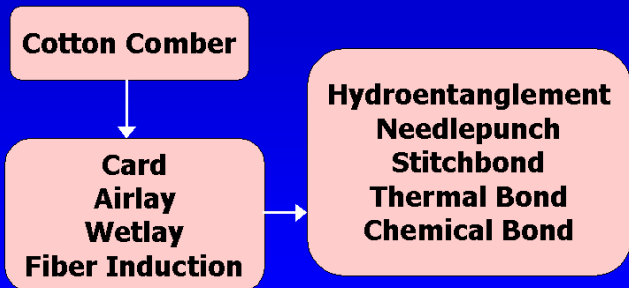


May include natural, bleached, and blended cotton with additional fiber types.

POSSIBLE TREATMENTS FOR COTTON NONWOVEN PRODUCTS

- Flame Resistance
- Water Repellency
- Increased Resiliency
- Resistance to Biodegradation
- Crosslinking for Durability to Washing

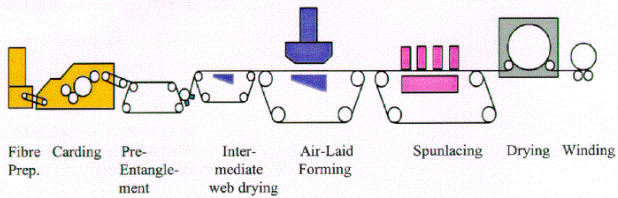
Cotton: Fiber to Fabric Transition



May include natural, bleached, and blended cotton with additional fiber types.

MULTI-DIMENSIONAL FORMATION/BONDING

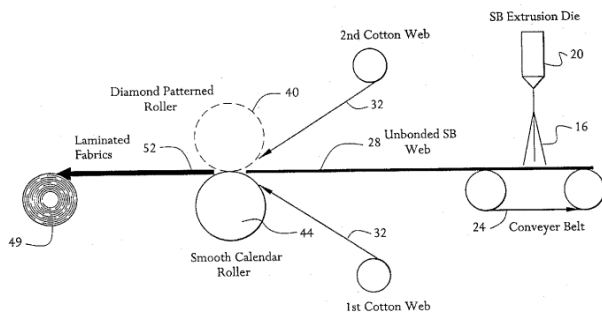
AIRLACE 2000



COMMERCIAL POTENTIAL

- ☞ Natural Appeal/Performance
- ☞ Consumer Demand
- ☞ Manufacturing Mentality
- ☞ Potential Consumption in North America Annually:
 - 7 absorbent core (331K tons)
 - 7 cover stock (175K tons)
 - 7 wipes (107K tons)

Lamination on the Spunbond Line for Three-Layer Cotton Laminates



EXISTING/POTENTIAL COTTON NONWOVEN PRODUCT CATEGORIES

PERSONAL CARE PRODUCTS

- ❖ Swabs - Puffs
- ❖ Cosmetic Pads
- ❖ Tissues
- ❖ Medical/Dental
 - ⤵ wipes, sponges, plugs
- ❖ Diaper Components
 - ⤵ coverstock, acquisition layer, cores, backsheet
- ❖ Feminine Hygiene
 - ⤵ pads, tampons
- ❖ Adult Incontinence
- ❖ Baby and Consumer Wipes

DURABLE - SEMI-DURABLE PRODUCTS

- ∪ Apparel
 - ™ clothing, performance wear, outerwear, medical gown and drape, interlinings

- ∪ Home Furnishings
 - ™ bedding, mattress pads, window treatments, wall coverings, decorative felts



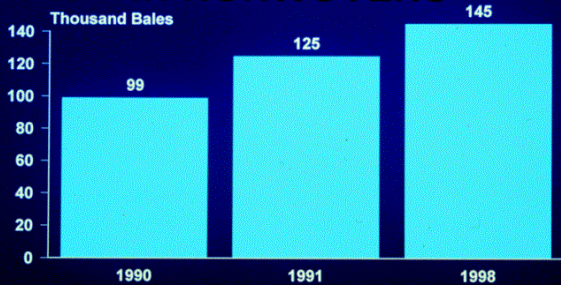
INDUSTRIAL PRODUCTS

- ∪ Filter Media
- ∪ Geo Textiles
- ∪ Protective Apparel
- ∪ Wipes
- ∪ Packaging
 - ∑ paper board
- ∪ Absorbent Media
 - ∑ chemical, oil
- ∪ Insulation
 - ∑ thermal, acoustical

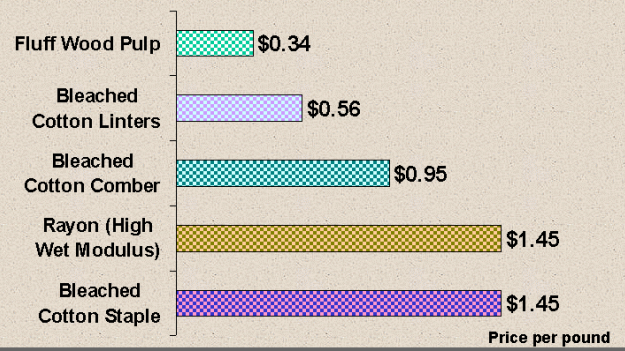
NONWOVENS Emergence of Air-formation Systems

- ❖ Fastest growing segment of industry
- ❖ High production
- ❖ Short fiber utilization
- ❖ Single production composite structures
- ❖ Ultra-thin, high absorbency concepts
- ❖ Multiple fiber and powder induction
- ❖ Production simplification/versatility
- ❖ Raw material economics

COTTON CONSUMPTION IN NONWOVENS



DISPOSABLE COTTON: THE ECONOMICS



THE NEW GENERATION OF COTTON DISPOSABLES

Unique Cotton Blends Incorporating

- ◆ bleached cotton staple
- ◆ bleached cotton linters
- ◆ bleached cotton comber
- ◆ super-absorbent powders

DEALER PRICE – PER CASE

500-700 grams	LBWD-1	\$110.00
700-1200 grams	LBWD-1	
1200-2250 grams	LBWD-2	

EXTRACTABLE PAD: \$135.00

500-700 grams	LBWD-0E	
700-1200 grams	LBWD-1E	
1200-2250 grams	LBWD-2E	

ORDERING INFORMATION

Toll Free: 1-800-872-5806
 Fax: 1-662-4784
 E-mail: admin@aol.com
 also available through the dealer of your choice
 For featured products, latest updates and placing an order
 via the internet, visit our website:
<http://hometown.aol.com/aluntsa/aid.htm>

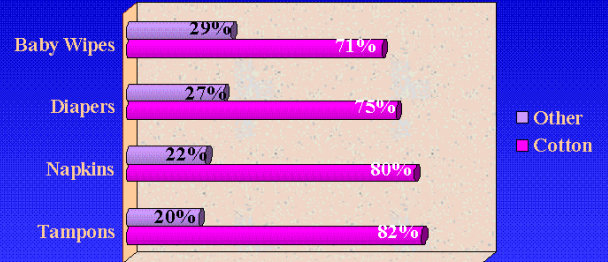
NONWOVENS RESEARCH Airlaid Products

Key Markets

- Wipes
- Diaper Cores
- Feminine Hygiene
- Adult Incontinence

CONSUMER ATTITUDES ABOUT COTTON

Given four fiber choices – rayon, cotton, polyester, and polypropylene – consumers overwhelmingly preferred cotton for fiber content of their personal care products.



Multiple answers allowed; percentages do not sum to 100%.

COTTON AIRLAID ACCOMPLISHMENTS

- ∪ Pulp Formation
 - ∑ cotton, cotton/fluff pulp
- ∪ Fiber Opening
- ∪ Formation
- ∪ Bonding
- ∪ Performance
- ∪ Machinery Developments
- ∪ A. Lunt Designs

THE DIAPERS ON THE RIGHT WILL ABSORB MORE MONEY.

COTTON: TODAY, TOMORROW, THE FABRIC OF OUR LIVES:

Uncover the Power of Cotton

Cottonaire™ for pantliners™ natural cotton airlaid that eliminates the need for coverstock.

New Cottonaire from Buckeye provides a truly soft, absorbent, and comfortable consumer demand for natural cotton products.

And because Cottonaire eliminates the need for coverstock in pantliners, a time-consuming step in production is removed, resulting in increased conversion, increased productivity, and enhanced profitability.



Experiencing powerful cost-cutting performance for cotton? Call your Buckeye representative today for samples of Cottonaire.

BUCKEYE
 1-800-227-7422
 Buckeye Technologies, Inc. 10000 W. 10th Street, Suite 100, Golden, Colorado 80401
 Buckeye Technologies, Inc. 10000 W. 10th Street, Suite 100, Golden, Colorado 80401
 Buckeye Technologies, Inc. 10000 W. 10th Street, Suite 100, Golden, Colorado 80401



Travel Bath

The perfect solution for:
 TRAVELING
 CAMPING
 HIKING
 BOATING
 BEACHING
 HUNTING
 FISHING
 OUTDOOR RECREATION

The Ideal Bathing Alternative for Every Body!

8 Wipes

The clinically proven formula for bathing, based on the texture of skin care. Designed to cleanse, soothe & protect the skin.

Joseph P. Zeman

TRAVEL TECHNOLOGIES

For Ordering or Customer Service: 800-227-7422 Ext. 101

Purely Cotton™

FACIAL TISSUE

For Sensitive Skin.

cotton™

15 2-PLY PREMIUM FACIAL TISSUES
 8.6 IN x 8.3 IN (21.8 cm x 21 cm)