

LINT CONTAMINATION A SERIOUS THREAT TO U.S. COTTON

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Introduction

Lint contamination is a serious threat to U.S. cotton, both for the textile industry but also for the raw cotton side of the industry. The total cost of cotton contamination is immeasurable. In the past few years, textile mills worldwide have invested an estimated \$200 million on equipment that will detect some of the major contaminant. This is money just to help minimize the problem and does not include the revenue lost due to broken contracts, loss of business or loss of confidence of a supplier even though effective contamination devices. These investments were made even though contamination detection devices are only partially effective.

The first place in the textile process that contaminants are evident, are in the fabric inspection line after the yarns have been woven or knitted, scoured, bleached and dyed. This is a costly place to find contaminants, because one contaminated bale will have tainted several hundred thousand pounds of cotton. Contamination is even more costly in the finished garment. In this case (slide) we are looking at men's shirts that would retail from \$25-60. Because of contaminants the garments are virtually useless.

Sources

Lint contamination can find its way into cotton in many forms. There are many suspects. Plastic twine, module cover materials, plastic shopping bags, sewing twine, irrigation ditch liners, sugar and honey dew, colored apparel are all potential contaminants.

Foreign fibers manifest themselves as defects that are woven or knitted inside of the fabric. Once foreign fibers get into the yarn, they are made into fabric. This defect (slide) is about an inch long. Often they are smaller, but they are surely fabrics that consumers will not accept. Defects can take the form of black plastic as in this photo or in this case in the darker fabrics -- a white contaminant. This slide happens to be polyethylene material. Plastic will not take the same dyes as cotton. It's a serious problem. The polyethylene can come from multiple sources. These are consistent with the material in shopping bags that are so littered on the roadside.

Polypropylene twine used as module tie-downs represents a very serious risk. For example, hay baling, twine used around the farm or gin, can destroy the merchantability of thousands of pounds of yarns and fabrics.

Grease and oil in cotton not only contaminates the fibrils themselves but migrates into the surrounding yarns. It will not be cleaned out during the scouring and bleaching processes.

Rubber picker doffers can be a source of contaminant. Rubber particles from cotton picker doffers were a serious problem fifteen years ago. All of the mainline equipment manufacturers are now supplying alternative polyurethane doffers that do not produce slivers such as the black rubber. Unfortunately there are still some black rubber neoprene doffers being sold into the market place.

Plastic fibrils come in many colors; some are blue or green, consistent with what might be in the module covers. I also have seen blue and green baling twine used around cotton fields.

Apparel fibrils from clothing lying around the seed cotton are also a source. They go through a cotton gin and get chopped up. Nylon, acrylic, polyester, and even cotton if dyed are serious contaminants.

No discussion on lint contamination would be complete without discussion of sticky cotton. Honeydew insect sugars on cotton get into the textile mill and will stick on any moving surface. Sticky cotton can virtually stop a textile mill.

Overall in US cotton, plastic represents a third of the problem, apparel fiber seems to be roughly a third, sand, rust, and jute and so on is the remainder.

We recently visited some thirty mills around the world including those in the United States, Mexico, Turkey, India, Thailand, Hong Kong, and Japan. One consistent message is that contamination is one of the biggest hurdles faced by the spinners and the down stream processors.

Contamination results in substantial claims on spinners supplying yarn to the knitters and the weavers. Increasingly yarn buyers are demanding contamination-free yarn with a guarantee. That's a tough guarantee for many spinners because they can see what's coming in cotton bales.

Contamination detection equipment is not 100% effective. It cannot recognize many of the contaminants. Devices are put in on the blow room to detect contaminants in raw cotton. They also are in the yarn winding stages. Manual detection is relied on in many mills.

Where labor is affordable, workers go through cotton bales before they are processed. This is quite labor intensive, an expensive process, but it indicates as a serious nature that some mills have. Let me say there's no U.S. textile mill that can afford to do this. So they have to rely on a clean supply of cotton. The solution is prevention. Farmers and ginners should use good housekeeping practices in fields, modules, gins, warehouses and transportation equipment. Always be sure to use the approved bagging. If any contaminants prove to be from the bagging, the industry has a committee who can make a change in the bagging specification.

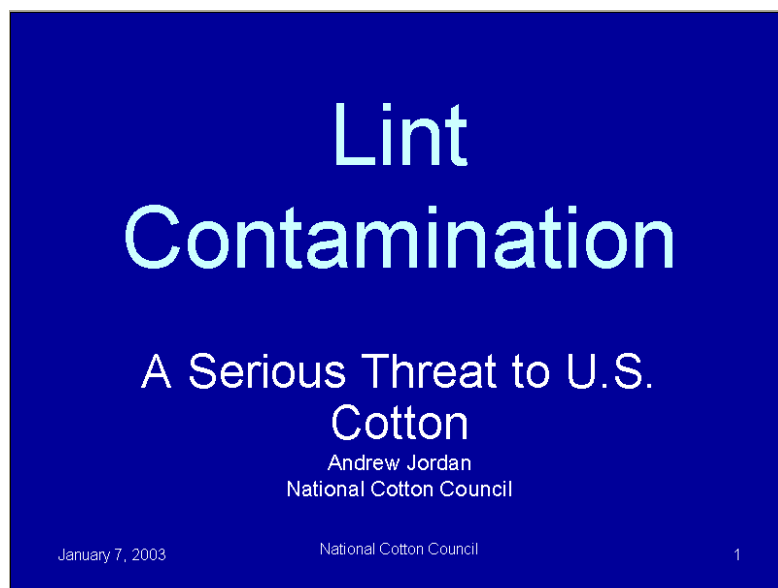
Police the fields for debris blowing in from highways and turning rows. Litter is an eye-sore but unfortunately is a cotton problem also. Clean the pickers and the stripper heads. A plastic bag wrapped around a brush can damage an entire module.

Scout for aphids and white flies. If textile mills have an area they suspect to have sticky cotton, they simply will avoid that area.

Inspect the modules not only while they are being built, but afterward. Watch them during processing. Some module covers are beyond repair. Throw them away. And make sure that a torn piece does not get into the gin to become chopped up. It can contaminate hundreds of thousands of pounds of cotton once blended in the textile mill. Don't use plastic on module tie downs. Don't use plastic on module tie downs. Keep hay baling twine away from the gin, and away from the farm.

Monitor moisture levels, anything more than 7 ½ or 8% can be a problem causing color change. Use approved packaging materials and keep those bales fully covered, work with the customers and work with the crews to use the industry resources. Cotton Inc., and National Cotton Council, can supply posters, brochures, and displays. We can provide industry experts for meeting with groups. Videos are available.

In conclusion, we will continue the education process. The US cotton industry is strategically positioned to be the absolute best. The fact that we machine harvest cotton is a plus with fewer people coming in contact with cotton. We have good bagging specifications and can change those if they are thought to be a problem. We have communication tools for education and training and with the commitment of our farmers, ginners and warehousemen that we will be the best.



Prevent Lint Contamination

...Clean Cotton
means
Satisfied
Customers



Fabric Inspection



Rejected Dress Shirts



Lint Contamination Is In Many Forms

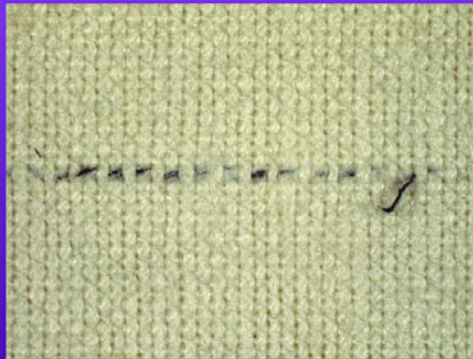
- Plastic twine
- Module cover
- Plastic shopping bags
- Irrigation ditch liners
- Sewing twine
- Colored apparel
- Rust
- Metal parts
- Sugar/honeydew

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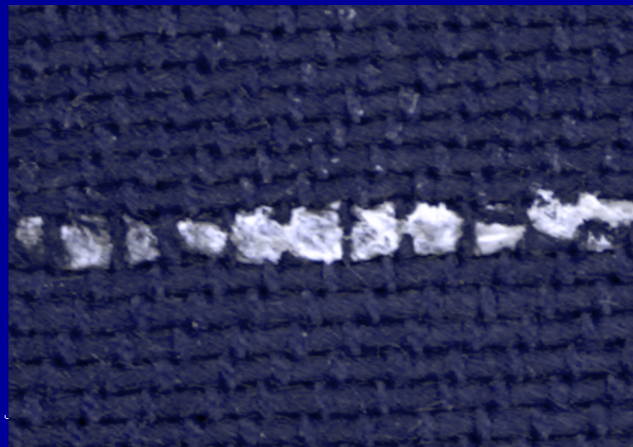
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Plastic in Finished Fabric



Polyethylene



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Polypropylene Twine



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Grease and Oil



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Rubber: Picker Doffers

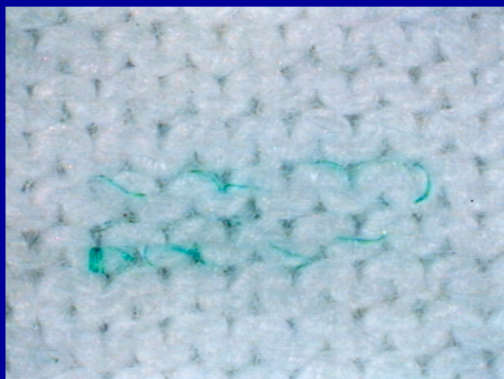


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Polypropylene Module Cover

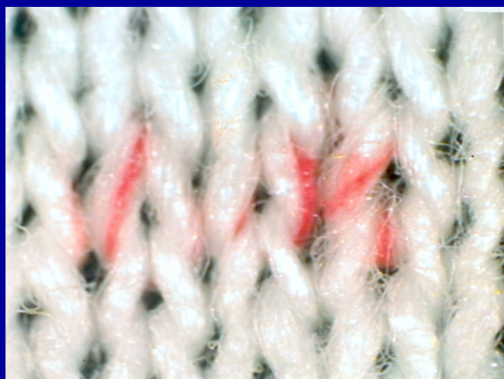


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Apparel fibers



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Plastic fibrils: Module tie-down twine



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Sticky Cotton

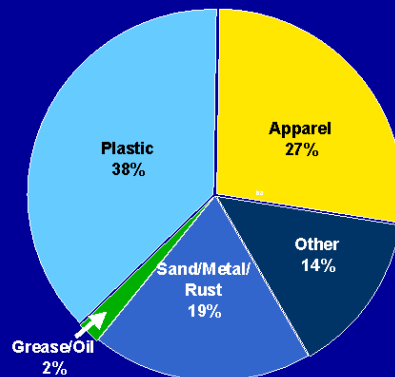


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Most Frequent Contaminants of U.S. Cotton*



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* Developed with use of 2003 ITMF Contamination Survey

“Contamination is one of the biggest hurdles faced by spinners and downstream processors.”

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“... contamination results in substantial claims from the end users of cotton yarn.”

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“Increasingly buyers demand contamination-free yarn with guarantee.”

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“... spinning equipment cannot recognize many contaminants.”

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MEASURES TO DETECT AND REMOVE CONTAMINATION

- Detecting devices in blow room
- Detection at yarn winding stage
- Manual detection

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Manual Inspection at Mill



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Contamination Types

Various contaminations



Polypropylene strings



Polypropylene bits



Metal



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Prevention

Practice good housekeeping

- fields
- modules
- gins
- warehouses
- transportation equipment

Use approved bagging

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Pick up Field Trash



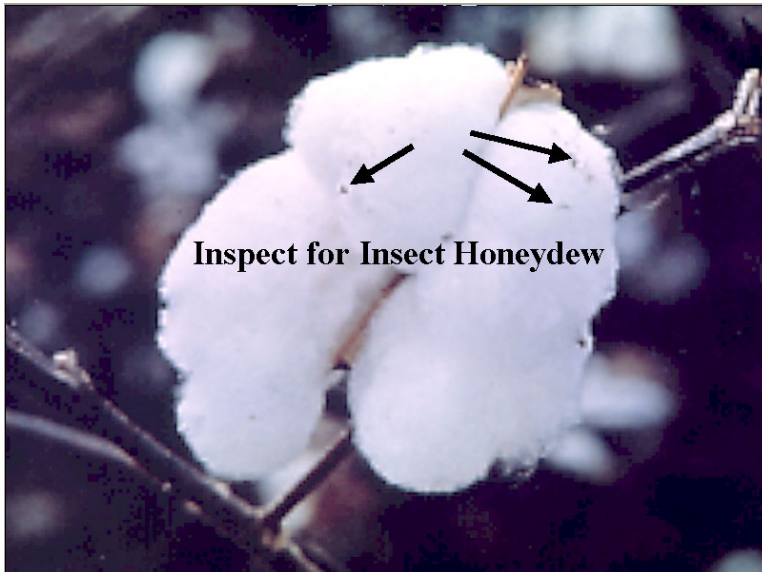
Clean Picker/Stripper Heads



Scout For Aphids And Whiteflies



Inspect for Insect Honeydew



Inspect Modules for Contaminates



Repair Module Covers



Remove Module Tie-downs



Do Not Use Baling Twine Around Cotton Fields or Gins



Be On Lookout For Contaminants In Seed Cotton



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Monitor Dryers-Moisture Levels



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Fully Covered Bales Reduce Contamination



Work With Customers And Work Crews For Best Management Practices

- Use Industry Resources
- Posters
- Brochures
- Displays
- Industry experts/speakers
- Videos

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GOOD HOUSEKEEPING GINS AND WAREHOUSES

ARE YOUR BALES COVERED? Prevent Lint Contamination To Preserve Your Markets Clean Cotton Means Happy Customers

Textile mills are leery of naked bales. It's no wonder. Even the finest particles can contaminate cotton lint, resulting in blemished finished goods. Careless handling of naked bales may compromise the integrity of the PBI tag and/or the USDA sample and class.

If producers and ginners want a marketable bale of cotton, they must work to eliminate contamination. The first step is recognizing contaminants and their sources. Use this checklist to help you minimize and prevent lint contamination.



At the Gin

- ✓ Keep area around press clean of dirt, oil and grease.
- ✓ Sweep and/or blow debris out of area at each shift change (more often if necessary).
- ✓ Avoid "cookie cutters" in bale presses, allow licensed sampler, i.e. warehouseman, to cut and pull samples.
- ✓ Check hydraulic hoses and cylinders in and around press daily for leaks.
- ✓ Lift trucks and other vehicles should be cleaned and checked daily for hydraulic leaks.
- ✓ Place bales on elevated concrete slab or clunnage until bales are moved to the warehouse for processing, and
- ✓ Naked bale storage yard should be fully covered and enclosed ... It is particularly important to hold naked bales in an environment that protects them from rain and wind blown contaminants.

Transportation

- ✓ Floor beds and cargo areas must be kept clean.
- ✓ Make sure loading equipment is not a source of contamination.
- ✓ Bales should be loaded with a minimum amount of exposure to environmental hazards.
- ✓ Use only fully enclosed vans to transport naked bales.
- ✓ When flat bed trailers are used, use tarpaulins that fully cover the entire load.
- ✓ Use only tarpaulins that do not present avenues for contamination, and
- ✓ Make sure naked bales are protected from truck's exhaust.

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At the Warehouse

- ✓ Keep receiving area clean of debris and other possible contaminants, and
- ✓ Lift trucks and other vehicles should be cleaned and checked daily for hydraulic leaks.

Processing and Storage

- ✓ Bales should be unloaded with a minimum amount of exposure to environmental hazards.
- ✓ Unload bales only in covered shed or warehouse and only on elevated concrete slab or clunnage.
- ✓ Make sure unloading equipment is not a source of contamination.
- ✓ Use scrubbing equipment to keep floors clean.
- ✓ Keep naked cotton bales off of floor whenever possible.
- ✓ Do not drag naked bales across floor, and
- ✓ Organize receiving and bagging area in a manner that minimizes handling of naked bales.

Sampling and Tagging

- ✓ Be sure that naked bale's original identification is maintained.
- ✓ Bag and tag cotton bales as soon as possible.
- ✓ At the licensed sampling agent for USDA, use diligence in cutting, pulling and placing PBI Form 1, Cotton Identification Catalog Form Cl-1000 in each sample.
- ✓ Properly bag samples for the government (USDA) classing facility, and
- ✓ Properly affix PBI tag to cotton bale bagging before storing bale in warehouse.

Transportation

- ✓ Floor beds and cargo areas must be kept clean, make sure only clean equipment is dispatched to gin customers.
- ✓ Encourage gins to use only fully enclosed vans to transport naked bales.
- ✓ When gins use flat bed trailers, encourage them to use tarpaulins that fully cover the entire load.
- ✓ Encourage gins to use only tarpaulins that do not present avenues for contamination, and
- ✓ Make sure naked bales are protected from truck's exhaust.



Contamination Education



January

COTTON
100% natural
Let's keep it that way

Remove plastics and trash from fields before harvest.

Keep plastics out of harvester heads.

Remove all covers and tie downs before ginning.

Your actions prevent contaminants as seen here.

REMOVE CONTAMINANTS!

CONTAMINATION CHECK POINT
REMOVE - LOCK OUT

National Cotton Council of America
The Cotton Foundation
Southern Cotton Ginners Foundation
National Cotton Ginners Association

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COTTON QUALITY REPORT
October 2003
Provided by the National Cotton Council of America

Zero Contamination Is a Worthy Goal

There are several sources of potential contamination in the cotton production process, from the field to the gin. The National Cotton Council of America has developed a series of educational materials to help cotton producers and ginners understand the sources of contamination and how to prevent it.

The goal is to ensure that the cotton is clean and free of contaminants at every stage of the process, from the field to the gin. This is a worthy goal, as clean cotton is essential for producing high-quality cotton products.

The National Cotton Council of America is committed to providing the industry with the information and resources needed to achieve this goal. We will continue to work with all stakeholders to ensure that cotton is clean and free of contaminants at every stage of the process.

For More Information:
Please contact the National Cotton Council of America at 1-800-455-6262 or visit our website at www.ncccotton.org.

U.S. Cotton Industry

- Strategically positioned to be the best
- Machine Harvesting
- Specifications for bale packaging
- Communications tools for education and training

