CONTAMINATION: EDUCATING THE GINNER AND THE GROWER

Shay L. Simpson
National Cotton Council
Memphis, TN

Abstract

Contamination has been a long time problem in the cotton industry. Even though the types of contaminants have changed over the years, the effect of degrading finished fabrics is the same. Increased reports of contamination initiated a renewed National Cotton Council effort to educate growers and ginners about contamination. Activities included mass mailings to gins and gin associations of brochures, posters, videos, flyers and a mini-display which was the highlight of the 1997-98 education program. Other activities included staff presentations at three gin schools, nine regional meetings, several individual gin meetings and co-operative meetings. A booth covering contamination was displayed at meetings in the four Cotton Belt regions. Radio reports and news releases were an added aspect of the Council's education. Many of these activities will continue in future years along with new activites. The U.S. cotton industry is on a path of reducing contamination and raising the quality of home-grown cotton.

Introduction

The U.S. cotton industry works in a concerted effort to prevent contamination of finished cotton textile goods. Since 1996, the reported occurrence of contamination has increased almost three fold. The most likely time that these sources of contaminants enter cotton's processing chain is during harvesting and ginning. The National Cotton Council has developed several educational programs to inform growers and ginners about how to prevent contamination of seed cotton and lint in the field and gin.

Contamination has always been a concern for textile processors. Over the years contaminants have changed. In the late 1970's approximately 25% of all contaminants originated from plastic materials, 25% originated from rubber materials, but the majority -- about 50% -- were caused from grease and oil. Grease and oil contaminants were primarily coming from the bales' surface, where exposed cotton had come in contact with grease and oil in storage and transportation. Changes in bale packaging materials and the fully covered bale requirement have helped in virtually eliminating problems associated with grease and oil.

Reprinted from the *Proceedings of the Beltwide Cotton Conference*
Volume 1:461-463 (1998)
National Cotton Council, Memphis TN

In addition, an industry push lead to the establishment of standards for bale conditions which help to assure that bales arriving at textile mills are in satisfactory condition.

Perhaps the greatest success story in the elimination of contamination through use of alternative materials involves black rubber specks. Accounting for about 25% of the complaints received, the probable source was rubber doffers on cotton pickers. If improperly adjusted, spindles on cotton pickers could grind doffers and create thousands of small pieces of rubber material that could be mixed with seed cotton. Because the materials created by over tightened spindles is similar in size and shape to cotton lint, it cannot be removed during seed cotton or lint cleaning processes. Cotton picker manufacturers invested heavily in the development of non-contaminating doffer materials made from polyurethane. Even with improper adjustment, these materials break off in chunks rather than small slivers, and these chunks can be removed in normal gin and textile cleaning procedures. Although the non-contaminating pads are about twice as costly as black rubber pads, all new pickers are now equipped with the non-contaminating pads, resulting in the virtual elimination of black rubber specks as a contaminant.

The prevention practices and alternative materials used to drastically reduce the grease, oil and rubber contamination problems have been a big help in keeping U.S. cotton highly competitive in the world market.

Recent Contamination Problems

Contamination continues to be a problem, but the contaminants have changed. Reports received by the National Cotton Council show that contamination from grease, oil and rubber make up less than 4% of the total problem. About 6% of the problems are created by materials that fall into miscellaneous categories for materials such as large objects, tools, paper and wire. Approximately 10% of the contaminant complaints can be linked to stained or dyed fiber. About 25% of the problems are related to contamination from apparel type fibers. Plastics account for the remaining 55% of the reported contamination problems.

In addition to reports the National Cotton Council receives actual samples of contaminants routinely from domestic and foreign textile manufacturers. These samples are evaluated for size, shape, color, type of material and textile type in which contaminant was found. The more recent synthetic long filaments found include irregular shaped black, round black, round red, blue, dark blue, orange, purple, lavender, red and light blue fibers. These materials were polypropylene, polyethylene, nylon and polyester.

Possible sources of contamination from plastics are almost unlimited in today's disposable society. However through the testing procedures and practical experience, a number of

possible sources are identified as being from module cover tie downs, module covers, grocery sacks or other random field trash.

Polypropylene or other twines used to hold down covers on modules or trailers are also a serious contaminant. Cords may be left on and become entangled with seed cotton and be pulled into a gin's suction pipe or module feeder. The twine can then become broken up by gin equipment and contaminate several bales of lint.

Tarps or covers used on seed cotton modules or trailers may also be a potential source of contamination. If covers become torn or frayed, loose materials may enter the gin with seed cotton and contaminate baled lint.

Plastic and other materials which have simply blown into a field are also potential sources of contamination. These materials can be picked up in harvesting equipment and become incorporated in seed cotton.

Plastics and other materials on gin floors, around gin machinery, and other areas can cause contamination. These materials can become incorporated with seed cotton, be ginned and contaminate baled lint.

While plastic materials cause the majority of reported contamination, less than 1% of contaminants found in finished goods have originated from bale packaging materials. This finding was verified through testing of polypropylene bale wrap. The design of polypropylene bagging includes a characteristic nickel concentration which distinguishes any shred of material from other polypropylenes. With improvements made to polypropylene bagging construction, contamination from bagging is essentially negligible.

Many of the complaints and samples received -- about 25% -- relate to contamination from materials found to be apparel fibers. These are staple length materials such as polyester, rayon, and nylon. Possible sources of these materials are pieces of clothing from either gin employees or farm workers. Work clothes become incorporated in seed cotton at the farm or gin. This may be the result of a worker who gets hot and removes a shirt, jacket, gloves, cap, or any other fabric, and lays it in the wrong place. The material then becomes hidden in the seed cotton in a module or trailer, or is picked up by a gin's feeder device. Even a 100% cotton garment can be a contaminant if it is colored and the cotton is going into a bleached white fabric.

NCC Educational Efforts

Increasing nationwide production and an influx of growers new to cotton production and ginners new to cotton ginning helped compel a renewed effort in the industry's contamination prevention education program for growers and ginners. Also, a sharp increase in reported contamination and costs associated with those contaminants, made it necessary to increase our educational efforts in order for U.S. cotton to remain competitive in the world market.

Over the past ten years, the National Cotton Council has been on a steady path of heightening ginner and grower awareness of contamination prevention. Educational efforts included the development of educational materials in cooperation with Cotton Incorporated and USDA-Extension Service. These materials consisted of brochures, posters and videos explaining the types of contaminants and their sources, and how to prevent those sources from causing contamination of seed cotton and lint.

The National Cotton Council has recently raised this education path to a new level. Several thousand copies of a new contamination prevention brochure, along with the previously developed contamination prevention poster were distributed during the 1996 harvest. The video entitled, "Cotton... Contamination-Free: A Pure Necessity," was redistributed to ginner and producer associations in 1996.

Other activities for prevention education in 1996 included news releases to print media, a series of radio reports on quality preservation including National Cotton Council's radio newsline available on a toll-free line (150 radio station calls per month) and National Cotton Council radio reports on the National Association of Farm Broadcasters news service (1500 radio stations).

During 1997, a much wider path was paved to increasing grower and ginner knowledge about contamination prevention. Since 55% of reported contamination is due to plastics, our major educational emphasis for 1997 was directed toward plastics.

A Contamination Prevention booth was part of the "Producing the Best" Workshop at the Beltwide Cotton Conferences in New Orleans. The booth included pictures, samples, and articles of possible causes of contamination and correct practices for preventing contamination both in the field and at the gin. Shirts and fabrics tainted with a range of plastic and apparel contaminants were presented at the booth. George Herron from Dan River, Inc. and George Wheeler with Unifi, Inc. were on hand to represent textile manufacturers that have experienced contamination. They discussed one on one with growers and ginners, the problems contaminants cause such as loss of income due to defects and mill downtime due to yarn breaks and possible machinery damage. Brochures, posters and videos were made available at the booth.

This booth was so well received by growers and ginners alike that we received requests to open the booth at other meetings. The January 1997 Southern/Southeastern Meeting in Birmingham, Alabama was the second stop for the booth. Sollie Foy and Keith Dean with Russell

Corporation were the manufacturer representatives that helped with accounting contamination problems to growers and ginners. The third stop was in April at the 1997 Cotton Trade Show in Lubbock, Texas. George Wheeler with Unifi, Inc. and Lance Broadhurst, Gerald Gohlke and Jerry Jones with American Cotton Growers Denim Plant were the manufacturer representatives present. The fourth stop for the booth was in June at the 1997 California Gin School in Visalia. Jim Thomas with The Dixie Group, Inc. was the manufacturer discussing associated problems with contamination.

A similar presentation compared to the booth was made throughout the Mid-South at area meetings in five states during the Summer months. Council and USDA-Extension staff presented practices for preventing contamination and materials for use around seed cotton and lint that do not cause contamination. One such material is a National Cotton Council recommended 100% cotton, **undyed**, non-contaminating rope or strap for securing covers on modules and seed cotton trailers.

Over 350 ginners and gin workers received information and small class setting instruction about contamination prevention during the National Cotton Ginners' Association Gin Schools. These schools were held in Lubbock, Texas in April, Stoneville, Mississippi in June, and Las Cruces, New Mexico in July.

A significant activity completed after a three year study was the development of module cover recommendations. Producers, ginners, and suppliers received these recommendations in the form of a brochure, "Just Tarp It - Selecting a Module Cover. This brochure covered topics such as storage and maintenance of covers, and general application techniques to the module.

Gin associations were sent a one page flyer for inclusion in newsletters or as a stand-alone mailing to their members. The National Cotton Council's Communications Services worked with Technical Services to develop points of interest and concern for preventing contamination.

Most recently, a joint Cotton Foundation, National Cotton Ginners Association, and Southern Cotton Ginners Association educational project was funded. Chuck Earnest had the profound idea to simulate the 1997 Beltwide-shown booth in miniature and distribute to gins. The resulting mini-display is an educational smorgus-borg of items. A T-shirt or dress shirt containing at least one flaw due to a plastic type contaminant is the highlight of the mini-display. The contaminants range from black and blue to red, orange, green, purple or other colors. Possible sources of the contaminants along with NCC recommended 100% cotton materials for preventing plastic contamination are display with the shirt. Reprints of articles and other educational text pertaining to contamination prevention are included on the display. By the end of the project, over 1200 mini-displays will be distributed in all areas of the Cotton Belt. Every gin in the U.S. will receive a mini-display for use in educational meetings with gin workers and growers. Punched holes in the top corners of the display allow a way to attach it to a wallboard. Strategically placed in the gin office, gin control room, or other area, the mini-display will continue to attract growers' and gin workers' attention.

In a sincere effort to help educate the cotton industry about prevention, the shirts were supplied by members of the American Textile Manufacturers Institute (ATMI), namely Parkdale Mills, Inc., Russell Corporation, The Dixie Group, Inc., Sara Lee Yarn Company and Dan River, Inc. Other materials and assistance were provided by Indeco Products Inc. and Farm Press Publications.

Future Plan

While much progress has taken place with regard to prevention and education, the National Cotton Council recognizes that additional work is required to keep awareness high. Plans continue for education using new forms of materials and techniques. Brochures, posters, mini-displays, videos and radio reports remain the instruments for informing people. Presentations at meetings and gin schools, word of mouth and articles in magazines remain the medium for distributing these instruments.

A future consideration for preventing plastic materials from contacting seed cotton and lint is the development of baling twine advisory. Council staff is involved with ASAE - The Society for Engineers in Agricultural, Food and Biological Systems on the development of baling twine standards. In these standards, a label advising users of the potential of causing cotton contamination could possibly be added to the packaging of twine.

The United States cotton industry has a reputation for providing a quality product and quality service. This is an industry wide problem and each segment must work together to assure cotton's high quality is not harmed because of contaminants. Each segment must assist in the educational effort of their particular group, as well as that of others, to assure all possible steps are taken to avoid contamination.

Educating and convincing people that contamination is a real problem if practices for prevention are not followed is half of the battle. The other half is establishing those practices in fields and gins.