

2008 BALE PACKAGING AND LINT CONTAMINATION SURVEYS**Dale W. Thompson****Bill M. Norman****Michelle Huffman****National Cotton Council of America****Cordova, TN****Introduction**

In June through early August of 2008, the National Cotton Council (NCC) asked U.S. and foreign mills to participate in an online survey, addressing bale packaging performance and lint contamination concerns. In addition to the NCC, two other organizations, the National Council of Textile Organizations (NCTO) and Cotton Council International (CCI), assisted with the preparation of the surveys and helped publicize the surveys. Both organizations targeted mill representatives who were willing to complete an online survey. NCTO assisted with the U.S. mill survey and CCI assisted with the foreign mill survey. The work of NCTO and CCI resulted in an excellent response to the surveys.

The surveys served a four fold purpose. First, the surveys provided mills with an opportunity to convey their preferences for specific bale packaging materials, that is bagging and ties. Second, the surveys provided a vehicle for mills to provide feedback on lint contamination concerns. Third, survey questions will provide a tool the NCC Joint Cotton Industry Bale Packaging Committee (JCIBPC) can use to gauge the attitudes of textile mills towards bale packaging preferences and performance. Finally the responses from the surveys will be used to strengthen the U.S. cotton industry's lint contamination prevention program.

Materials and Methods

Survey questions were based on interview questions previously used by NCC staff and trade teams in visits with domestic and foreign mills. An online survey tool called Survey Monkey™ was used to deliver the survey to the targeted mills. The introduction to both surveys included the following statement:

“...the National Cotton Council of America (NCC) is actively pursuing the elimination of lint contamination from all sources and the preservation of bale cleanliness so that optimum bale conditions are preserved for textile customers of U.S. cotton.”

“To accomplish these goals, a better understanding of lint contamination bale issues and bale packaging material performance is needed. Because most U.S. cotton lint is consumed outside the U.S., we are conducting a worldwide mill survey to provide us with reliable information concerning lint contamination. You are invited to participate. The survey uses a multiple choice design, limiting the need for precise answers. For each question, choose the answer or category MOST APPROPRIATE for your business. Please be sure to answer ALL questions. The survey consists of less than 20 questions and can be completed in about 10-15 minutes.”

When mills were contacted about taking the survey, they were assured that their responses would remain confidential. Therefore, only aggregated responses to questions were included when the data from the surveys was compiled for presentation. It should be noted that in addition to multiple choice responses, most questions provided mills with an option for an open-ended response. While some open-ended responses are referenced, those responses are reported in a manner that prevents disclosure of any mill's identity.

Questions on the surveys covered three areas. First, the mills were asked who they were and what they produced. Second, they were asked a series of questions about packaging material preferences. Finally, mills were given the opportunity to respond to a series of questions concerning contamination and environmental issues.

A review of the surveys reveals that almost all U.S. mills participated in the survey. While close to 200 foreign mills took or attempted to take the survey, the summary report for the foreign mill survey is based on answers from 160 foreign mills (Figure 1).

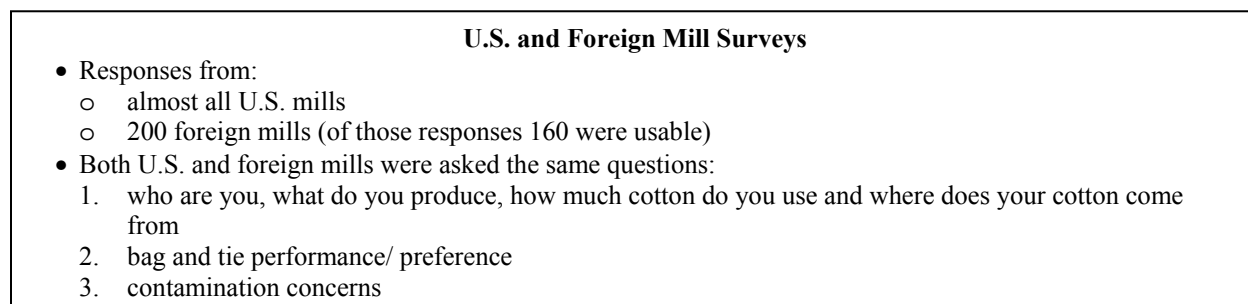


Figure 1. U.S. and Foreign Mill Surveys

Because responses from the survey will be used to help shape U.S. bale packaging policy and CCI will use the results to respond to questions concerning U.S. cotton, when reporting the results NCC staff chose to include only responses from mills who actually consume some U.S. cotton. The surveys were designed to make sure key questions on the U.S. mill survey matched key questions on the foreign mill survey. Survey questions were modeled after questions NCC Technical Service's staff and industry trade teams use in face to face interviews with textile mill representatives.

Many foreign mills who took the survey, consume less than 50,000 bales (11,000 metric tons) per year. Other responses came from mills that use over 1,000,000 bales (225,000 metric tons) annually. Most of the responses came from mills between the high and low consumption numbers. It should be noted that the results reported in the two summaries are not weighted by cotton consumption or, in the case of foreign mills, how much U.S. cotton a mill consumed. A cursory review of weighted responses by volume revealed that both large and small mills had similar likes and dislikes when it came to bale packaging materials. The same was true for the responses to the contamination questions. So it is accurate to say that small, medium and large mills face similar issues and voice similar concerns when it comes to bale packaging preferences and contamination concerns.

Sourcing U.S. Cotton

The U.S. mill survey revealed that a majority of U.S. mills only use U.S. cotton. The foreign mill survey included responses from mills operating on all major continents except Africa. Consumption of U.S. cotton by foreign mills included responses from mills that used less than 10% U.S. cotton to mills that use exclusively U.S. cotton. Foreign mills were allowed to report use in metric tons or bales, while U.S. mill consumption was only reported in bales. Both surveys showed that mills appear to have preferences for certain regional growths of cotton. However, nine foreign mills could not identify the source of their U.S. cotton and marked the "unknown" box on the surveys (Figure 2). One of the larger foreign mills indicated that they spin only U.S. cotton and buy all of that cotton from one geographic region. The referenced textile mill rated the region in the U.S. where they source their cotton as a region that had no contamination. When foreign mills were asked to compare U.S. cotton with other growths, most of those mills responded by rating the U.S. as a source of cotton with significantly less contamination than other growths.

9. Source of Cotton by Growing Region in U.S.*	South-east	Mid-South	South-west	West
Less than 10%	11	9	7	13
21 to 40%	10	9	14	12
41 to 60%	10	22	20	8
61 to 80%	3	2	8	7
81 to 90%	2	1	5	4
More than 90%	1	1	3	4
100%	3	3	21	25

Figure 2. * Question # 9 on Foreign Mill Survey Results: as a percent of annual cotton purchases indicate the amount of cotton typically bought from each region.

Responses to Bale Packaging Preferences Questions

The same range of responses was used for packaging (bag and tie) preferences questions and a “0” to “4” scale was used to evaluate responses. The types of packaging materials included in the survey are materials approved for use as packaging materials in the U.S. The use of the same responses for all questions allowed mills to supply individual preference responses for each material. The following responses were allowed for each packaging characteristic: “poor”, “below average”, “average”, “above average”, and “superior”. When the responses to the questions were rated a “poor” response was assigned “0” and a “superior” response was assigned a “4” with an equal weighting for responses between poor and superior.

Bale Packaging

Questions regarding bagging and ties provided mills with an opportunity to compare performance of and preferences for various packaging materials (Figure 3). The bag and tie preferences figure summarizes responses from both surveys. The figure indicates U.S. mills expressed a strong preference for PET plastic strapping while both surveys indicate that burlap is the least preferred bagging material.

BAG & TIE PREFERENCES			
Least Preferred = 0 Most Preferred = 4		Domestic	Foreign
		Question 11	Question 14
Ties	Steel Strap	1.2	2.0
	Wire	1.8	2.1
	Plastic (PET) Strap	3.6	2.5
		Question 17	Question 20
Bagging	Burlap	0.6	0.7
	Cotton	2.1	3.1
	PE Film	3.1	2.5
	Woven PP	2.3	1.5

Figure 3. Question 11 on Domestic Mill Survey and Question 14 on Foreign Mill Survey Results: Overall, describe your preference level for each bale tie material.

Question 17 on Domestic Mill Survey and Question 20 on Foreign Mill Survey Results: Overall, describe your preference level for each bale bag material.

Bale Ties

The survey asked the mills to evaluate three types of bales ties. Tie types were traditional steel straps (hoops) – a material still widely used by many foreign cotton gins, wire – the most widely used bale tie in the U.S. and PET plastic straps. U.S. mills were asked to consider the following characteristics when rating each tie type: “breakage”, “contamination risk”, “recycling potential”, “safety” and “cost”. U.S. mills indicated that tie cost was not an issue they were comfortable addressing. Based on the U.S. mills’ response to the cost question, that question was dropped from the foreign mill survey. For each tie type, two types of graphics are used to summarize responses. The first graphic (Figure 4), a frequency distribution chart, shows the range of responses to question 10 on the foreign mill survey for a range of steel strap characteristics. Percentages conceal individual mill responses but the chart demonstrates the diversity of opinion that exists when foreign mills are asked to rank the performance of steel strap.

10. For each category, rank the performance of STEEL STRAP bale ties relative to other bale tie materials.

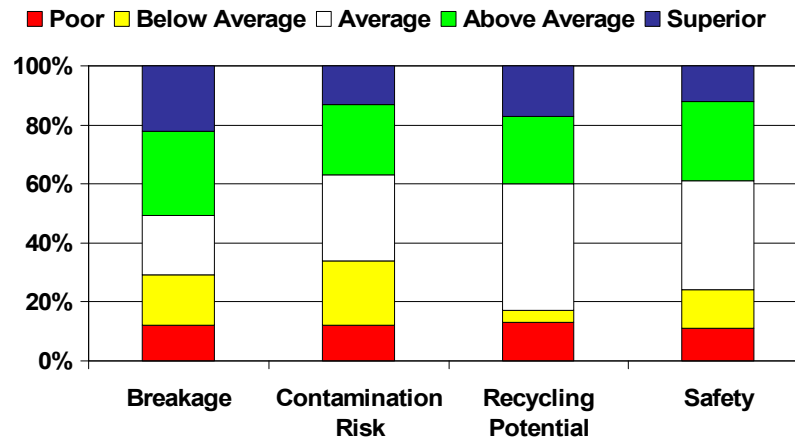


Figure 4. Responses for Question # 10 on Foreign Mill Survey and Question # 7 on U.S. Mill Survey

Next, a bar chart (Figure 5) shows the overall ranking of the same characteristics for steel strap by foreign mills. Space limitations preclude including similar graphics for all packaging materials surveyed.

10. For each category, rank the performance of STEEL STRAP (HOOP) bale ties relative to other bale tie materials

□ Poor = 0; Below Average = 1; Average = 2; Above Average = 3; Superior = 4

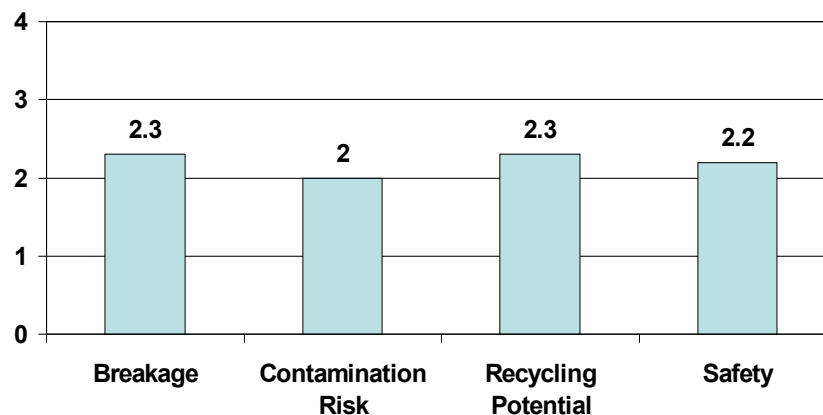


Figure 5. Responses for Question # 10 on Foreign Mill Survey and Question # 7 on U.S. Mill Survey

The final bale tie question asked mills to express a preference for one of the three types of bale ties. In this case the 0 to 4 scale was used with 0 being least preferred and 4 being most preferred (See Figure 3). Mills had the option of submitting open-ended responses to the performance question for each type of tie. In most cases the open-ended responses confirmed then underscored a mill's previous answers. In a few cases, mills expressed concerns over characteristics that were not previously mentioned.

Bale Bagging

The same methodology was used for bale bagging questions. Mills were asked to evaluate four different types of bagging. The types of bagging were burlap, cotton, polyethylene (PE) film and woven polypropylene. The U.S. mill survey asked mills to rate the following characteristics: "durability", "contamination risk", "recycling potential", "cleanliness", "cost" and "moisture transfer". Most U.S. mills indicated that bagging cost was not their concern. Based on responses to the U.S. survey, staff chose not to include cost or moisture transfer on the foreign mill survey. The same types of charts may be used to analyze the surveys' bagging questions. Open-ended responses were allowed for all bagging questions. The final bale bagging question gave the mills an opportunity to communicate their bagging preferences. As previously noted those preferences are summarized in Figure 3.

Lint Contamination and Environmental Concerns

There were questions in the bag and tie sections that addressed packaging material disposal. The last portion of the surveys focused on lint contamination and related concerns. Mills were asked to share their lint contamination experiences (Figure 6). The final figure is based on the following yes or no question: "Has this facility had cotton fiber contamination in the past 12 months?" If the mill answered "yes", a follow up question asked about the frequency of those occurrences. Once again open-ended questions allowed mills to elaborate on their contamination experiences. Additional questions presented mills with an opportunity to provide information concerning the colors and types of contaminants they find in cotton. Responses to these questions help us pinpoint possible sources of contamination.

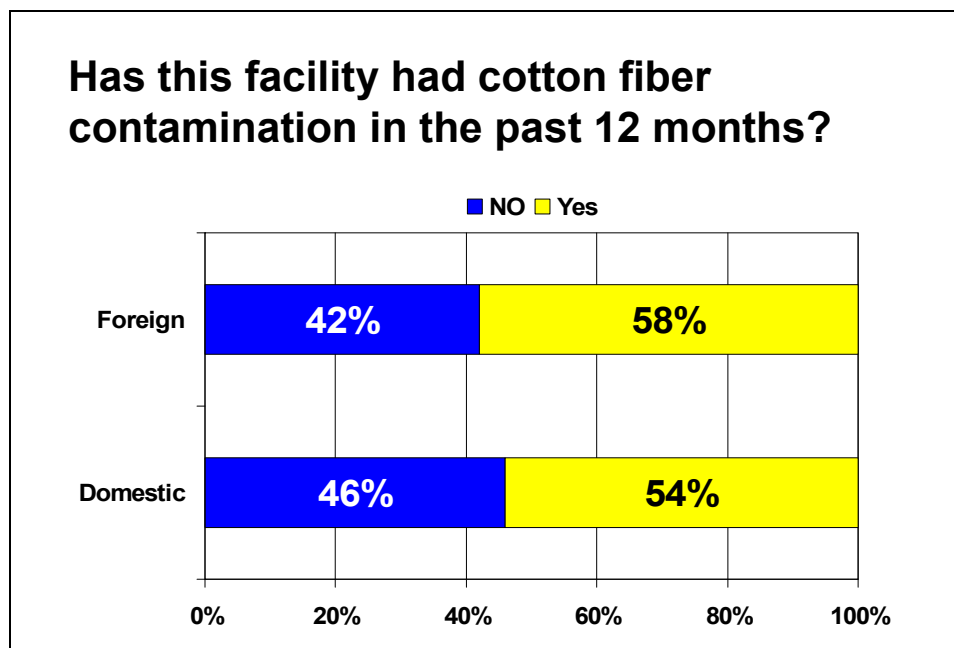


Figure 6. Responses for Question #25 on Foreign Mill Survey and Question #20 on U.S. Mill Survey

Finally mills were asked to compare the amount of contamination in cotton growths from around the world with U.S. cotton. We were pleased that 53% of the mills answering this question believe that U.S. cotton is significantly less contaminated and another 33% of the mills stated that U.S. cotton is less contaminated than other growths. The concluding open-ended question asked the foreign mills to identify "...what country or countries produce cotton with the least contamination?" Forty-eight mills answered U.S. cotton, seventeen answered Australian cotton and fifteen responded by ranking U.S. cotton and Australian cotton as equally clean.

Conclusion

The results from these surveys provide the U.S. cotton industry with information about how our packaging materials are performing and will become a policy development tool. Survey results are used by the NCC JCIBPC when the performance of packaging materials is evaluated. The survey will also be used to protect and build on the U.S. raw cotton industry's image as a source of contamination free cotton.

The U.S. understands its reputation as a source of contamination free cotton is on the line each and every day bales of U.S. cotton are spun into yarn any where in the world. With that fact in mind, the results from these and other surveys will be used to urge ginner, growers and others to search out and remove potential sources of contamination as cotton is harvested and ginned. Preventing lint contamination and improving the performance of bale packaging materials is a goal the U.S. cotton industry whole-heartedly embraces.

Acknowledgements

CCI staff is commended for what is an exceptional response from foreign mills to the international survey. CCI representatives from around the globe made sure mills knew about the survey and had an opportunity to complete it. In the case of the Chinese survey, CCI went above and beyond by personally interviewing many mill representatives then completing the online survey for them. In addition, the CCI team in Turkey translated the survey for those mills so that the Turkish mills could go online and complete the survey in their native language. NCTO should also be commended because their efforts resulted in almost all U.S. mills completing the U.S. survey.