

Global Perceptions of U.S. Cotton

Report to the NCC Board of Directors
September 2020

C+R
RESEARCH



COTTON USA™
THE COTTON THE WORLD TRUSTS



Study Background and Methodology



Background & Objectives

Cotton Council International (CCI) focuses its marketing efforts on two customer bases – mills/manufacturers and brands/retailers. As the first stop in the supply chain, CCI places a major emphasis on mills and manufacturers. CCI's goal is to educate mills and manufacturers on the benefits of U.S. cotton and promote the purchase of U.S. cotton over cotton from other regions of the world.

Historically U.S. cotton has been branded as “contamination-free.” However, over the past several years, the U.S. cotton industry has received a larger number of complaints regarding contamination from its bale packaging. The U.S. industry uses plastic bale wrapping meant to hold up to wear and tear from shipments around the world. However, this plastic bale wrapping may be tearing and contaminating the cotton inside.

The goal of this study is to understand whether or not bale packaging contamination is a problem unique to the United States, and if it is a problem, what are the preferred solutions from their customers.



Methodology

Through a self administered online survey, we spoke with **167** contacts at various mills and manufacturers. Contacts had the option of taking the survey either in English or in their native language.

Contact information was provided by CCI; surveys were sent by C+R Research.

The survey fielded May 19 – June 12, 2019



Regions and Markets 2020

US Region (n=9)

- United States

NEA Region (n=13)

- Korea (n=8)
- Taiwan (n=5)

CHK Region (n=16)

- China (n=16)
- Hong Kong (n=0)

SEA Region (n=40)

- Indonesia (n=20)
- Thailand (n=6)
- Vietnam (n=14)

SAG Region (n=64)

- Bangladesh (n=19)
- India (n=19)
- Pakistan (n=26)

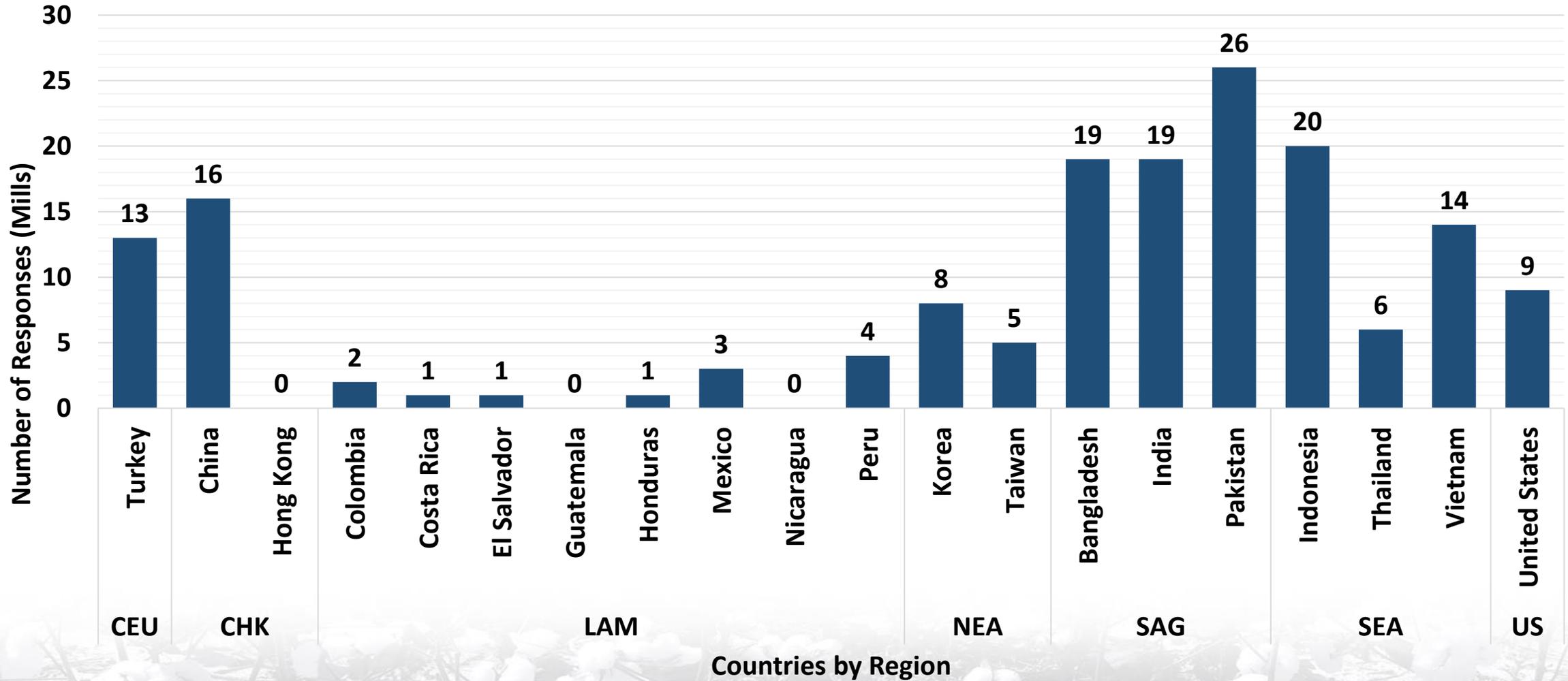
LAM Region (n=12)

- Costa Rica (n=1)
- El Salvador (n=1)
- Honduras (n=1)
- Mexico (n=3)
- Guatemala (n=0)
- Colombia (n=2)
- Peru (n=4)
- Nicaragua (n=0)

CEU Region (n=13)

- Turkey

Response by Country

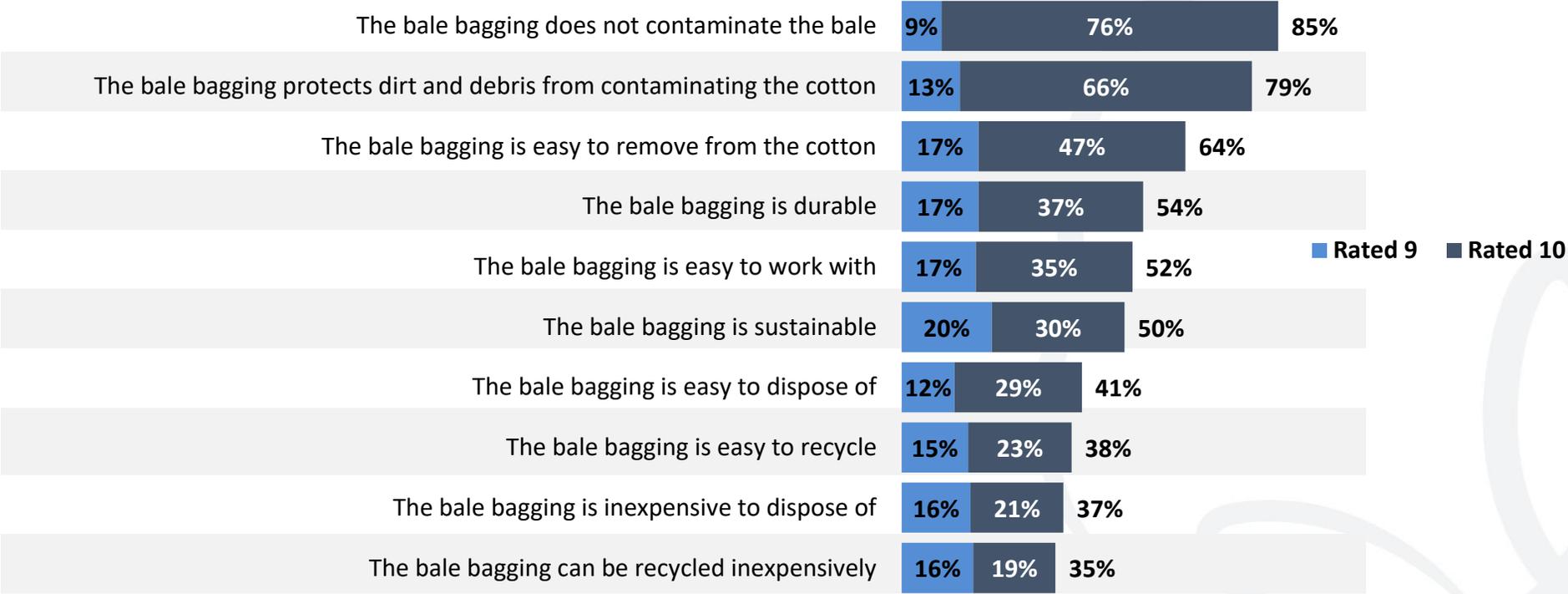




Detailed Findings

Mills/manufacturers say it's most important the bale bagging does not contaminate the bale and the bale bagging protects dirt and debris from contaminating the cotton. Easy removal, durability and sustainability are also important.

Importance of Purchase Factors to Bale Bagging Materials (% Rated 9/10 on Importance)

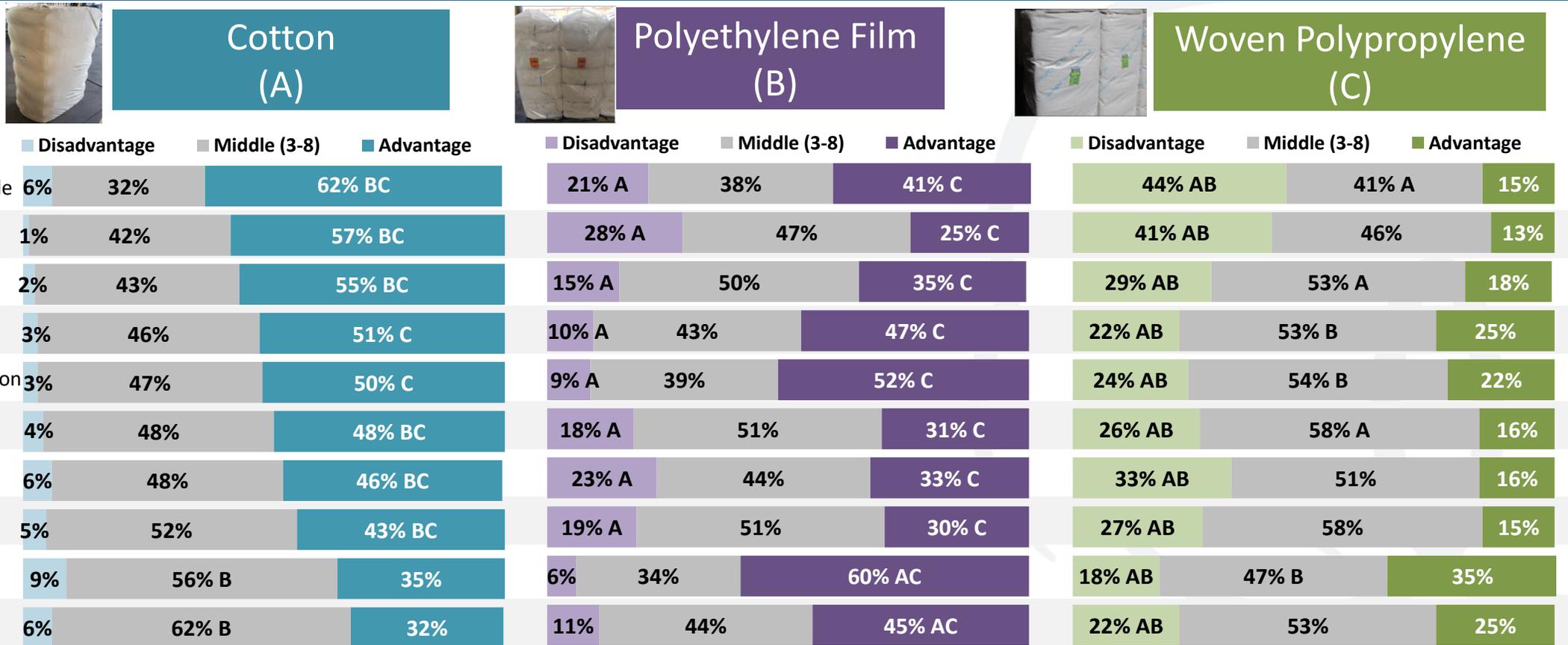


Base: Global Total (n=167)

Q1. When purchasing cotton, how important are each of the following related to cotton bale bagging materials? / Scale: 10 pt where 10 = Very important and 1=Not at all important

Cotton bale bagging has the advantage of no contamination, sustainability, and ease of use – the attributes most important to Mills/Manufacturers, and very minimal disadvantages. Polyethylene Film and Woven Polypropylene have more disadvantages, but Polyethylene Film does the best job at protecting the cotton from contamination and on durability.

Advantages of Each Bale Bagging Material



Base: Global Total (n=167)

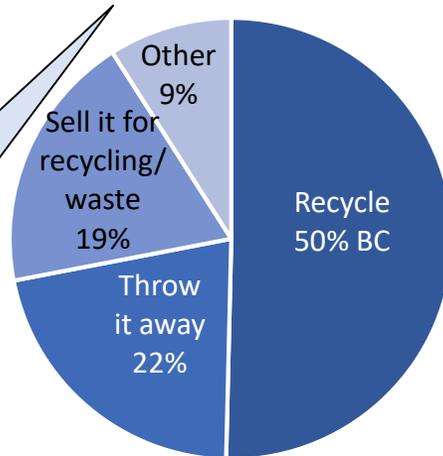
Q2a. For each of the following, is it an advantage or disadvantage of bale bagging made from [INSERT MATERIAL]? / Scale: 10 pt where 10 = An advantage and 1=A disadvantage

Materials are sig-tested against each other at 90% and shown as A/B/C

Half of Mills/Manufacturers recycle their cotton bale bagging, the most of the three types. Around 4-in-6 throw away the Polyethylene Film or Woven Polypropylene bagging materials.

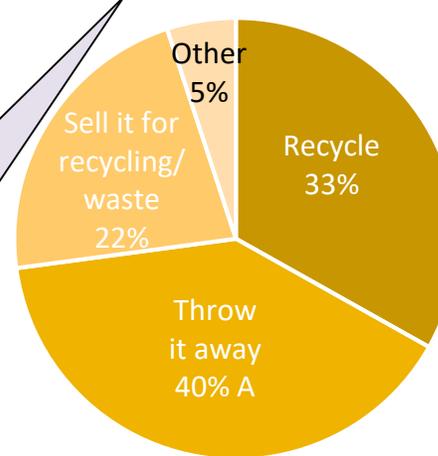
Bale Bagging Material Disposal Method

Cotton (A)



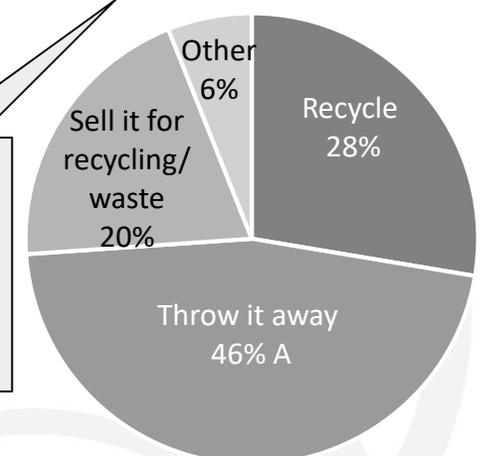
"Other" Top Answer:
Reuse for packing or cleaning (n=11)

Polyethylene Film (B)



"Other" Top Answer:
Reuse for packing (n=7)

Woven Polypropylene (C)

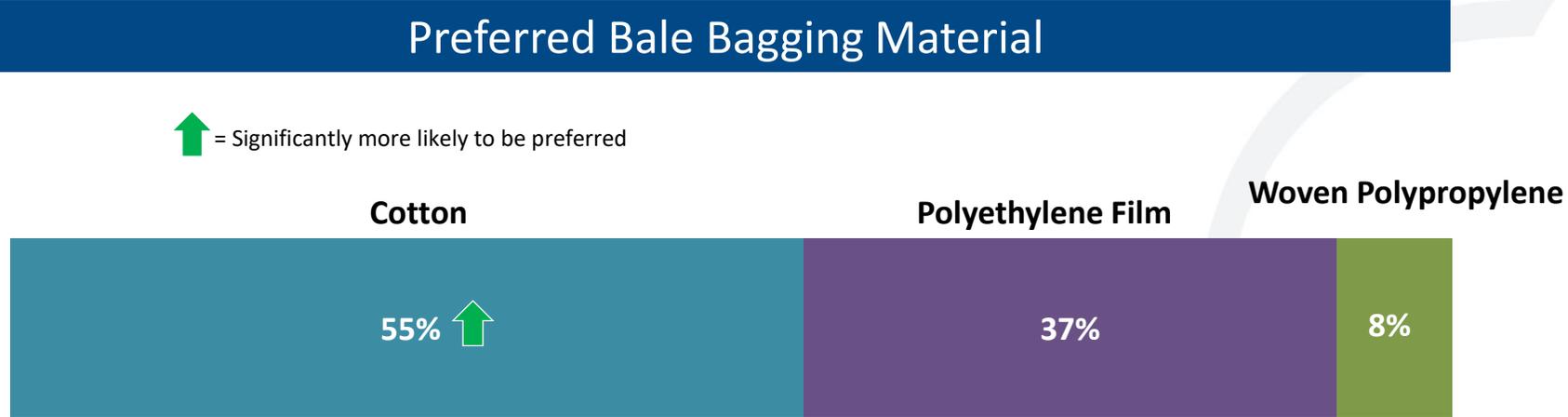


"Other" Top Answer:
Reuse to bale cotton waste (n=5)

Base: Global Total (n=167) / Q2b. How do you dispose of [INSERT MATERIA] bale bagging?

Materials are sig-tested against each other at 90% and shown as A/B/C

Cotton is preferred by over half of Mills/Manufacturers, followed by just over one-third for Polyethylene Film.



↑ = Significantly more likely to be preferred

*"1. When unpacking, there is **no risk of broken pieces being mixed with the cotton**, resulting in foreign fiber. 2. Green **eco-friendly** 3. **Recyclable** 4. **Not prone to decay** during storage."*

*"Recycle, durable, **cotton should be covered by cotton!**"*

*"**Easy to unpack without contaminating** the cotton bale."*

*"It protect the cotton from **rain, dust, dirt and moisture** variation during transportation. It protects the cotton from **termite, molds and fungus** etc. during storage. **Safe** opening of bale for processing."*

*"**Resists tearing** and stands up better over time. We see **less holes** in this material."*

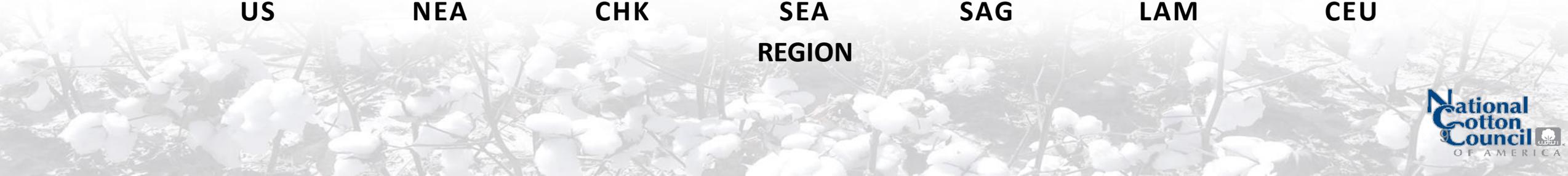
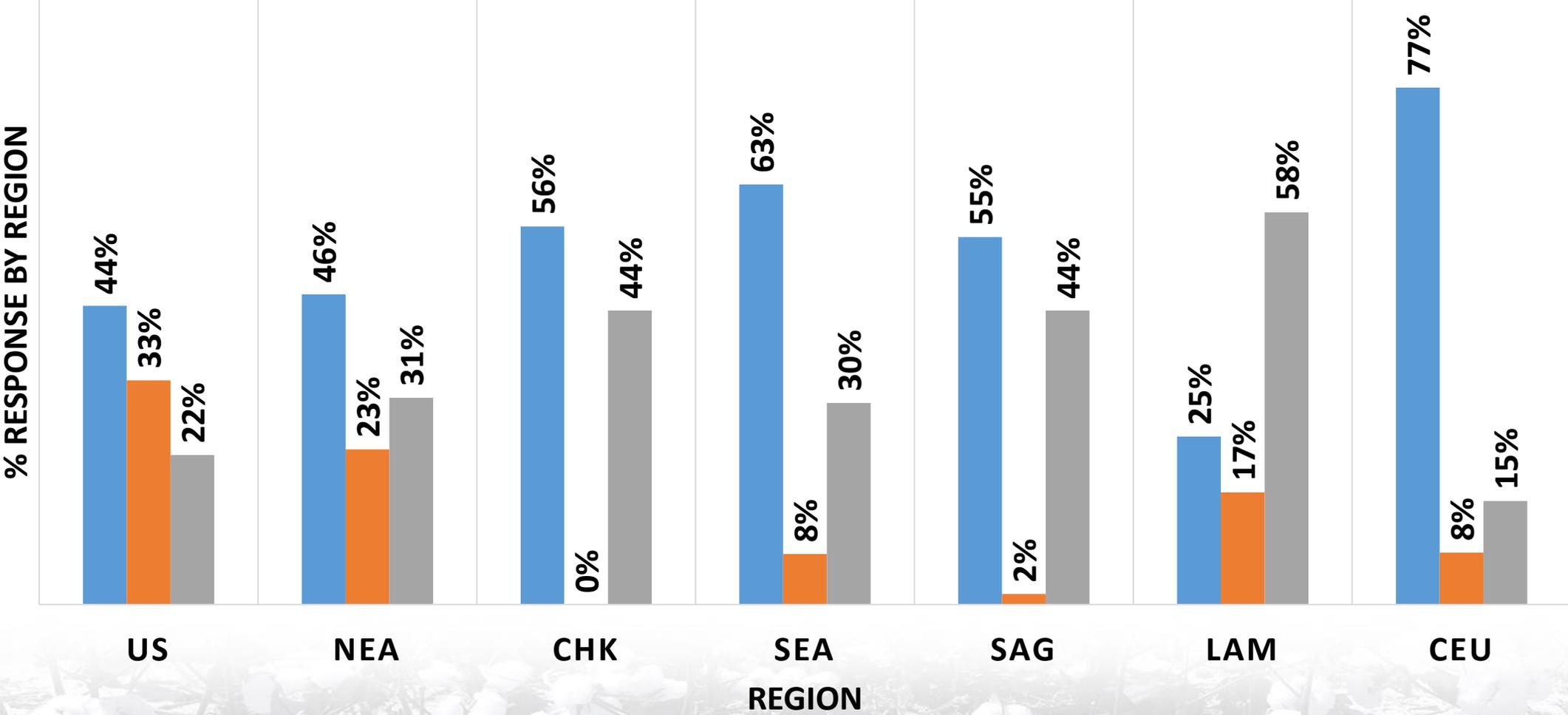
*"The best way for us to **prevent contamination.**"*

Base: Global Total (n=167)

Q3a. Overall, in what material would you prefer a bale of cotton to be bagged? / Q. 3b Why is "material" your preferred cotton bale bagging material?

BALE BAGGING PREFERENCE BY REGION

Cotton Woven Polypropylene Polyethylene Film



Cotton is preferred for its ability to reduce contamination issues and it’s environmental friendliness. Those who prefer Polyethylene do so for its durability and protection.

Reasons for Preferred Bale Bagging Material

| | Cotton (n=92) (A) | Polyethylene Film** (n=62) (B) | Woven Polypropylene (n=13) (C) |
|---|-------------------------|---|---|
| Reduces contamination issues | 68% B | 42% | ** |
| Environmentally Friendly (Net) | 42 B | 18 | ** |
| Recyclable/easy to recycle | 26 B | 8 | ** |
| Sustainable materials | 17 B | 3 | ** |
| Environmentally friendly | 12 B | 2 | ** |
| Provides Protection/Protects The Bales (Net) | 16 | 50 A | ** |
| Protects the bales against foreign fibers | 9 | 5 | ** |
| Protects the bales from dirt/debris | 3 | 18 A | ** |
| Best protection for bales | 2 | 18 A | ** |
| Protects the bales from moisture/water/mold | 2 | 19 A | ** |
| Durability (Net) | 9 | 19 A | ** |
| Doesn't break apart easily | 4 | 8 | ** |
| Sturdy/durable/strong | 3 | 11 A | ** |
| Prefer cotton material | 9 | NA | ** |
| Easy to remove/ unpack | 3 | 11 A | ** |
| Transparent/can see what's in the bale | 0 | 13 A | ** |

“

Cotton:

Green and eco-friendly, recyclable, can prevent contamination by foreign matter during unpacking.

Because it is sustainable and does not contaminate. My only fear is that it may not be durable enough for the multiple handlings it will experience.

Easy to remove. Chances of contamination is less even if bag particles go in cotton. Easy to dispose of.

Polyethylene Film:

Because it doesn't contaminate the cotton, also more sustainable, durable, easy to remove, also waterproof than other two materials.

1) Protect moisture/rain water 2) Protect contamination 3) Easy to remove from cotton 4) Can preserve for a long time

Woven Polypropylene:

Highly durability, good cotton protection, good water and moisture resistance, easy to remove.

Because it is sturdy and less torn than other types of packages. In addition, it will be also easier to open.

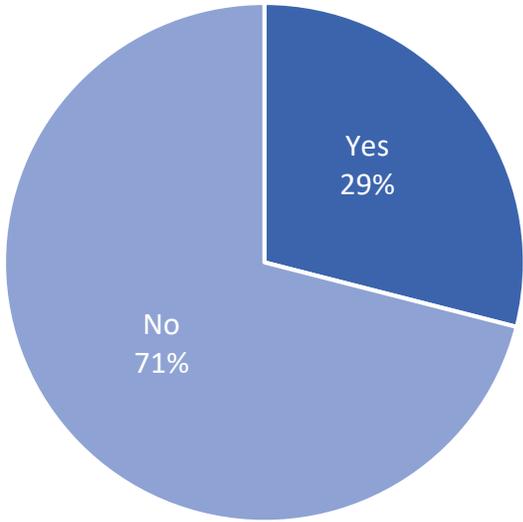
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Base: Preferred Bale Bagging Material ** Extremely low base size, use directionally
 Q3b. Why is [INSERT MATERIAL] your preferred cotton bale bagging material? / Note: Only showing mentions of 9% or higher

Most Mills/Manufacturers won't pay more for Cotton Bale Bagging versus a plastic bale bag. Those who will only want to pay a very nominal amount more.

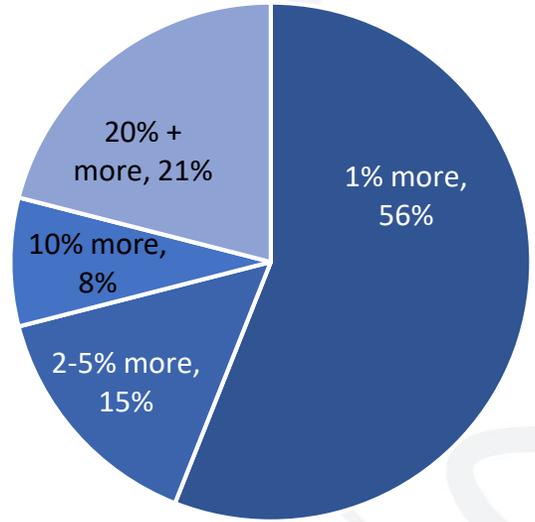
Willingness to Pay More For Cotton Bale Bagging

% Would Pay More



n=48

How Much More



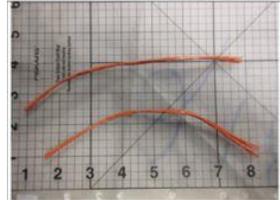
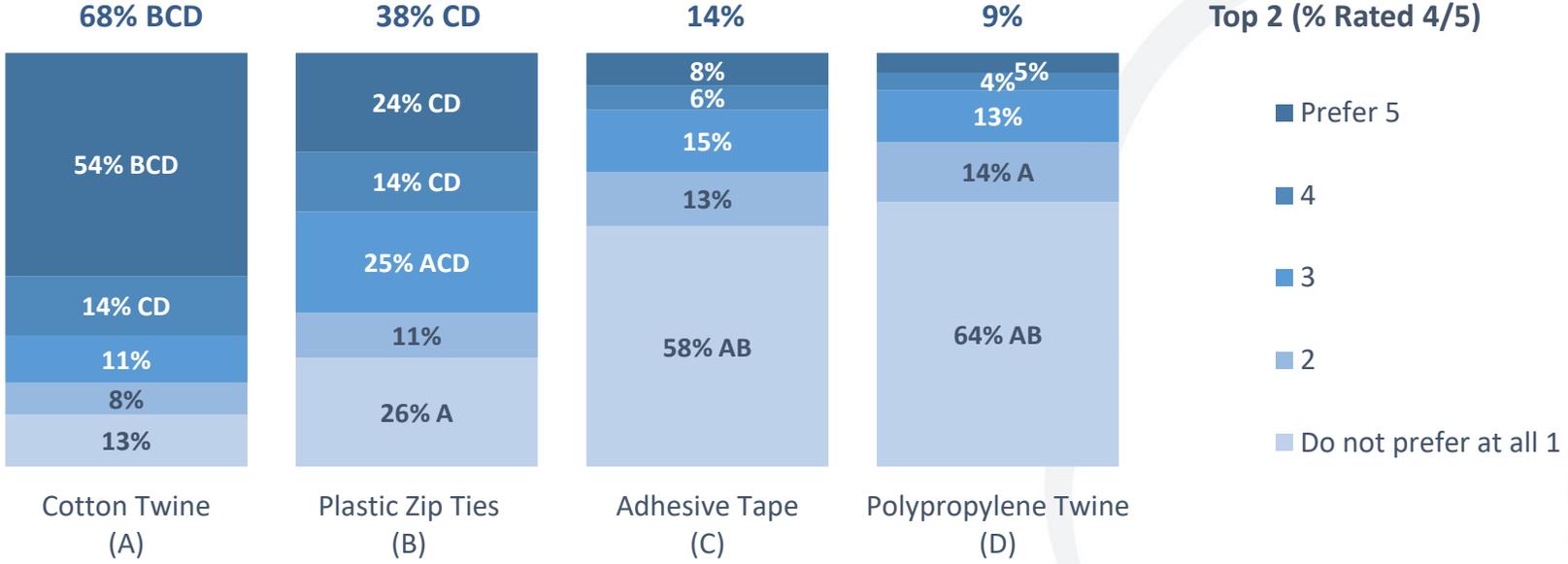
Average: 15.5 % more

Five respondents (10%) said they are willing to pay 80%+, driving up the average

Base: Global Total (n=167) / Q4a. Are you willing to pay more for cotton fiber bagged in a cotton bale bag than cotton fiber bagged in a plastic bale bag? / Base: Responded "yes" to Q4a (n=48) / Q4b. How much more are you willing to pay for cotton fiber bagged in a cotton bale bag over a plastic bale bag?

Cotton Twine is also the most preferred bale bagging closure material. Adhesive tape and Polypropylene Twine are least preferred.

Preference of Each Bale Bagging Closure Material



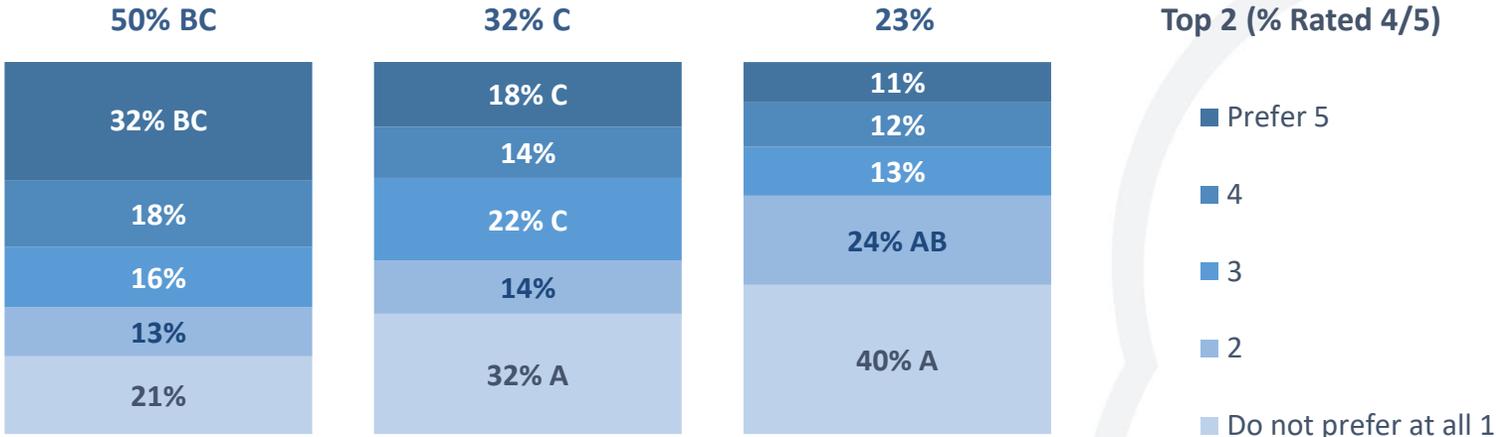
Base: Global Total (n=167)

Q5. For each type of bale bagging closure material, what is your preference?

Materials are sig-tested against each other at 90% and shown as A/B/C/D

Half of Mills/Manufacturers prefer Polyethylene Sleeves to patch bale material. One third prefer “Cling Wrap” and Adhesive Plastic Tapes are least preferred. Some also write in preference for Cotton or Cloth Fabric as their preferred patching material.

Preference of Each Bale Patching Material



Polyethylene Sleeve (A)



Polyethylene Stretch Film "Cling Wrap" (B)



Adhesive Plastic Tapes (C)



13% Selected "Other"

Top "Other" Mentions

- Cotton or cloth fabric (n=10)
- Bale should be re-bagged (n=2)

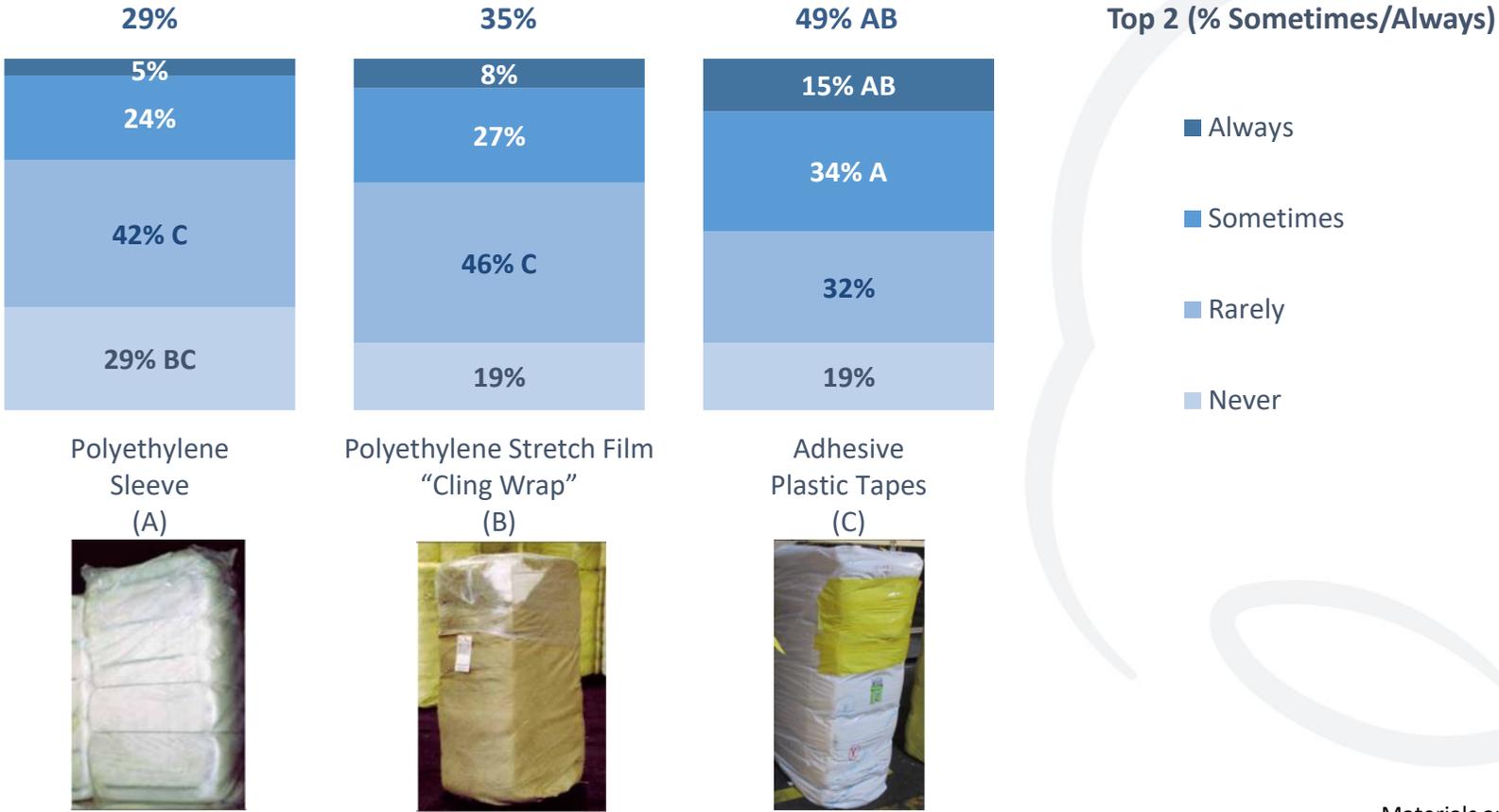
Base: Global Total (n=167)

Q6. For each type of bale patching material, what is your preference?

Materials are sig-tested against each other at 90% and shown as A/B/C

Consistent with preference, Polyethylene Sleeves (the most preferred option) have issues less frequently, while half of Mills/Manufacturers say Adhesive Plastic Tapes cause issues sometimes/always.

Frequency of Issues with Bale Patching Material



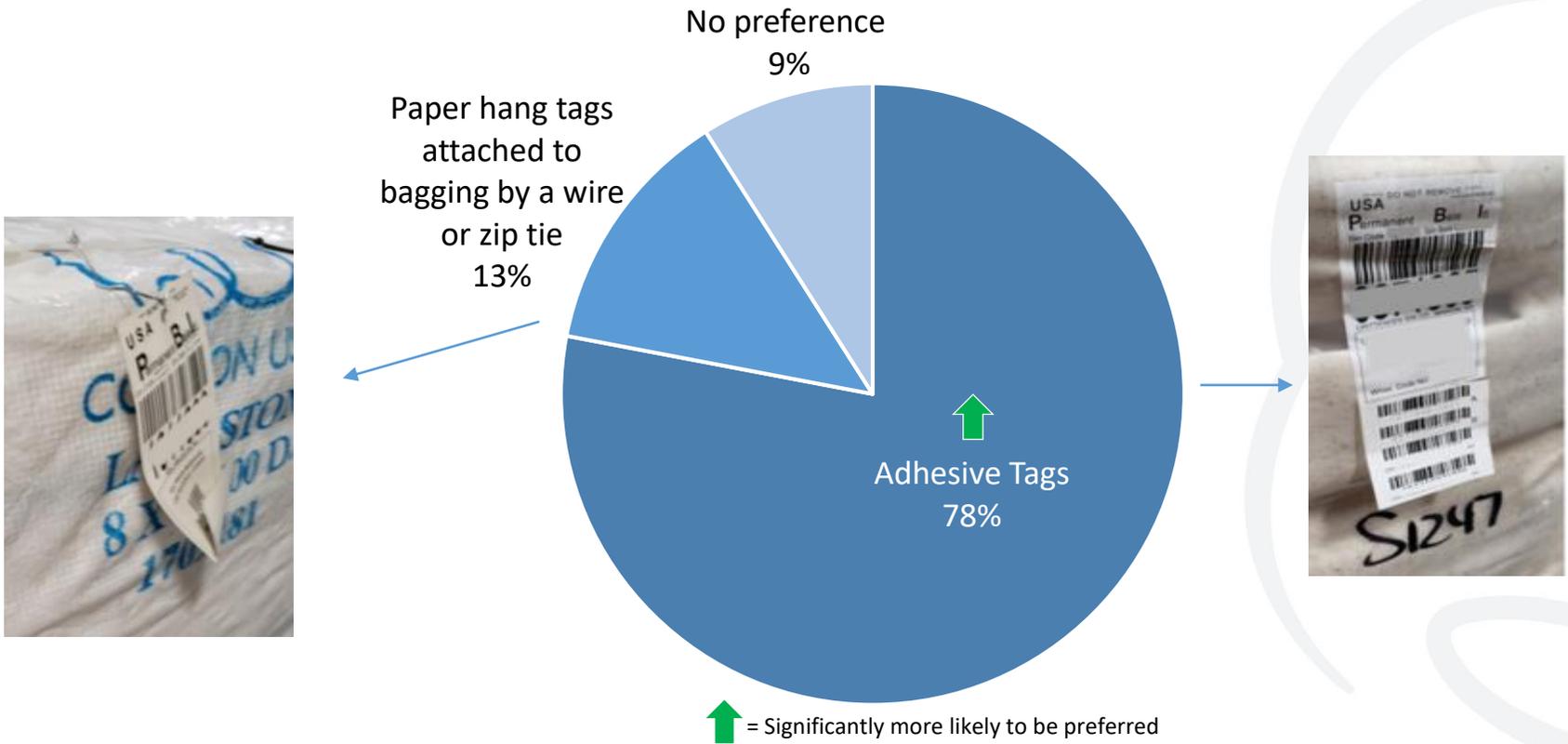
Base: Global Total (n=167)

Q7. For each type of bale patching material, do you ever have any issues with it during opening?

Materials are sig-tested against each other at 90% and shown as A/B/C

Adhesive tags are preferred over paper hang tags by over three-quarters of Mills/Manufacturers.

Tag Style Preference

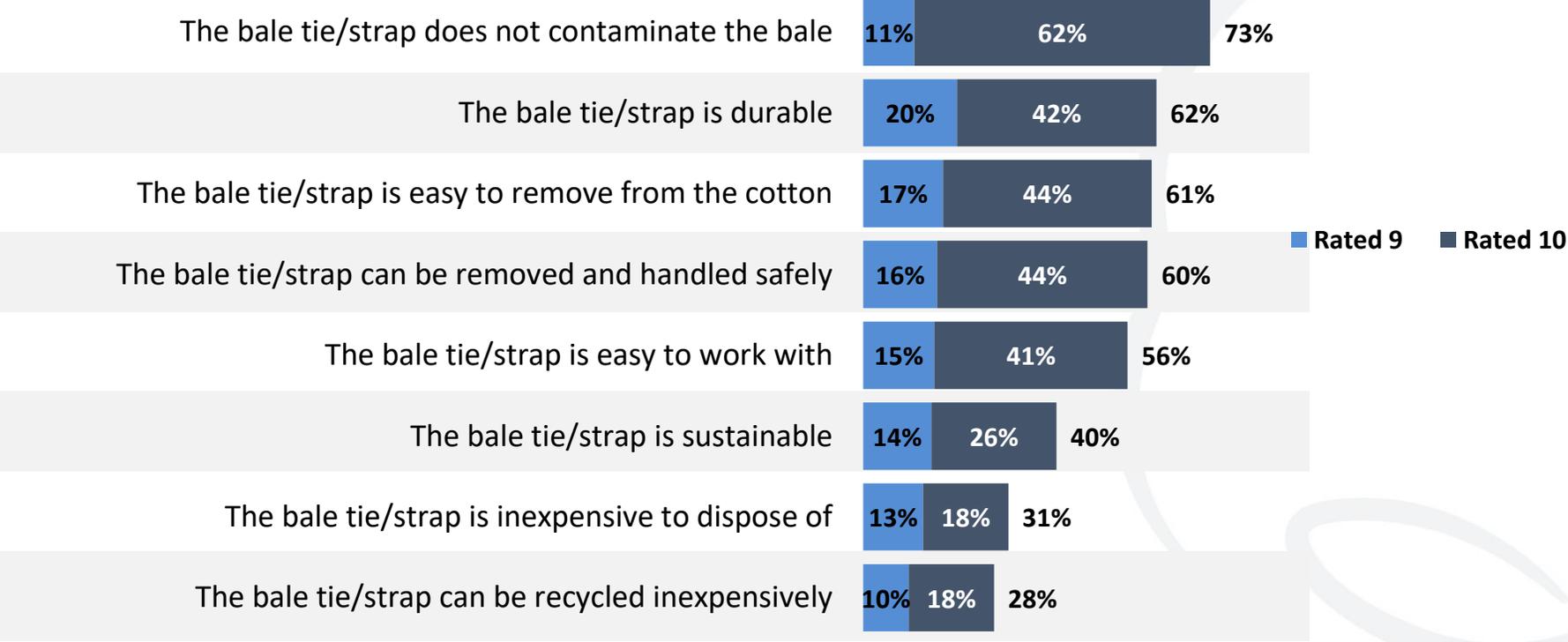


Base: Global Total (n=167)

Q8. For many years the US has utilized a permanent bale identification (PBI) number system to provide a unique identifier for each bale. That system requires PBI tags to be applied to each bale. Which tag style do you prefer?

It's most important that the bale tie/strap does not contaminate the bale. It should also be durable and easy to remove and handle safely.

Importance of Purchase Factors to Tie/Strap Material (% Rated 9/10 on Importance)



Base: Global Total (n=167)

Q9. When purchasing cotton, how important are each of the following related to the material used to tie/ strap the cotton bale? / Scale: 10 pt where 10 = Very important and 1=Not at all important

PET Straps are easier to remove, work with and handle safely, and have few disadvantages. Meanwhile, Wire Ties are slightly more durable than PET Straps and less likely to contaminate the bale. Still, they aren't as easy to remove, work with or handle safely.

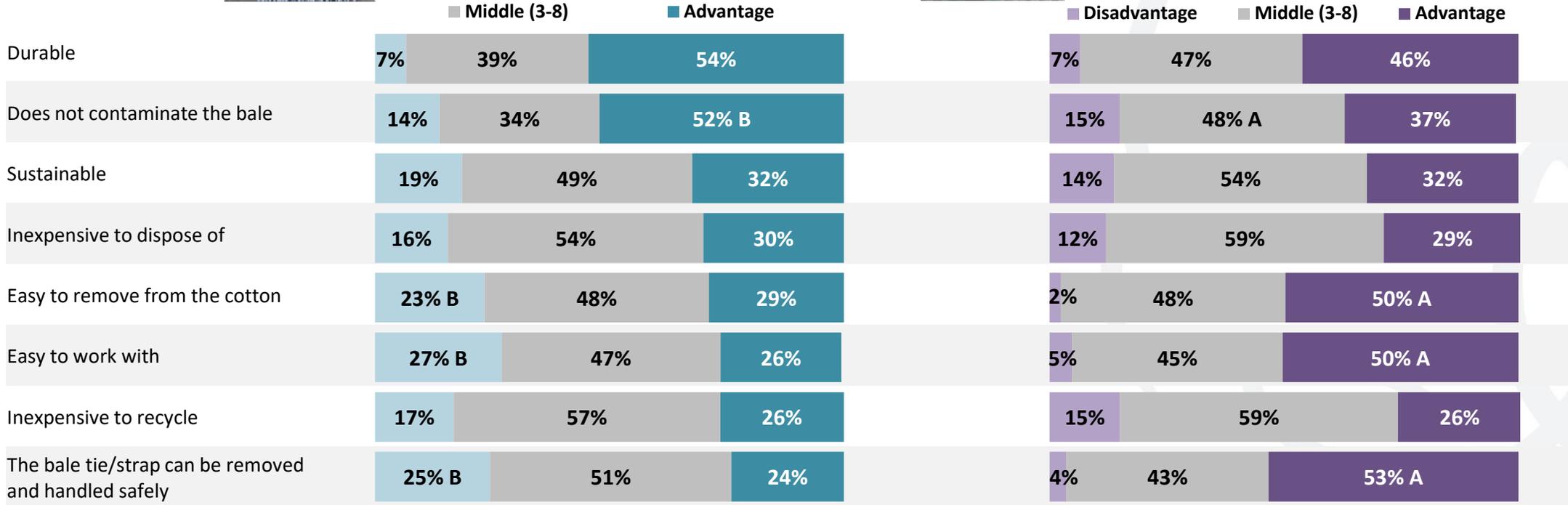
Advantages of Bale Tie/Strap Materials



Wire Ties
(A)



PET Straps
(B)



Base: Global Total (n=167)

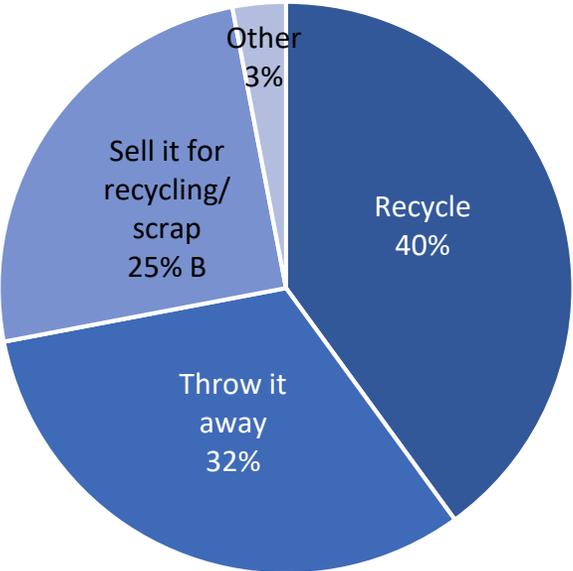
Q10. For each of the following, is it an advantage or disadvantage of bale ties/ straps made from [INSERT MATERIAL]? / Scale: 10 pt where 10 = An advantage and 1=A disadvantage

Materials are sig-tested against each other at 90% and shown as A/B

Just over one-third of Mills/Manufacturers recycle either the Wire Ties or PET Straps. Wire Ties are more frequently sold for recycling/scrap, while PET Straps are more commonly thrown away.

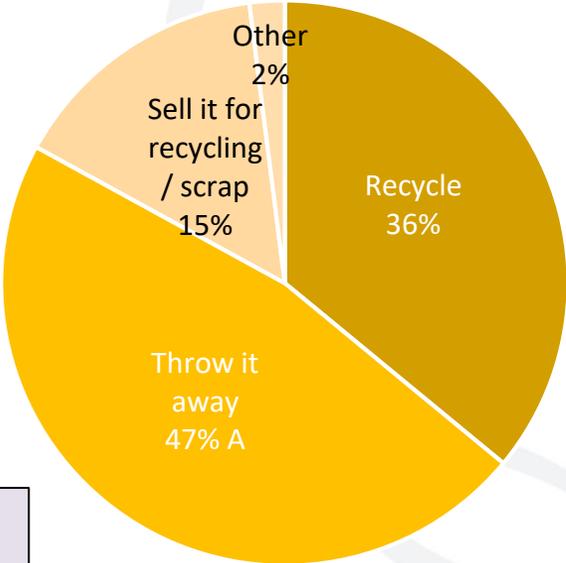
Disposal Method

Wire Ties (A)



“Other” Top Answer: Reuse it (n=3)

PET Straps (B)



“Other” Top Answer: Reuse it (n=2)

Base: Global Total (n=167)

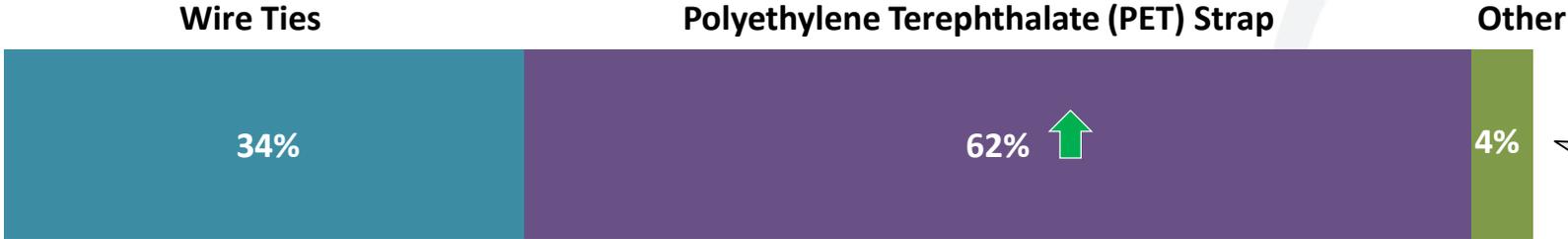
Q11. How do you dispose of [INSERT MATERIA] bale bagging?

Materials are sig-tested against each other at 90% and shown as A/B

When forced to choose, Mills/Manufacturers tend to prefer PET Straps to Wire Ties.

Preference of Bale Straps

↑ = Significantly more likely to be preferred



*“Easy to remove, cotton is **not contaminated** by impurities, **sellable** as scrap...”*

*“It is **recyclable**, more **durable** and **does not contaminate** the cotton bale.”*

*“It **won’t break** while handling.”*

*“Wire sometimes create **rust** and **water marks** which cause damage of cotton. While **PET strap is good.**”*

*“There is **no chance of fire hazards** there is no chance to left any piece of strap in the cotton which may cause fire during the process. **Easy to remove. No chance of spark** while opening.”*

We have a very big problem with the PET strap contamination on the cotton

no wire tires or PET strap, wire tires give a fire risk while PET strap is to contaminate the bale and weak

COTTON WIRE

Some thing alternative to both above

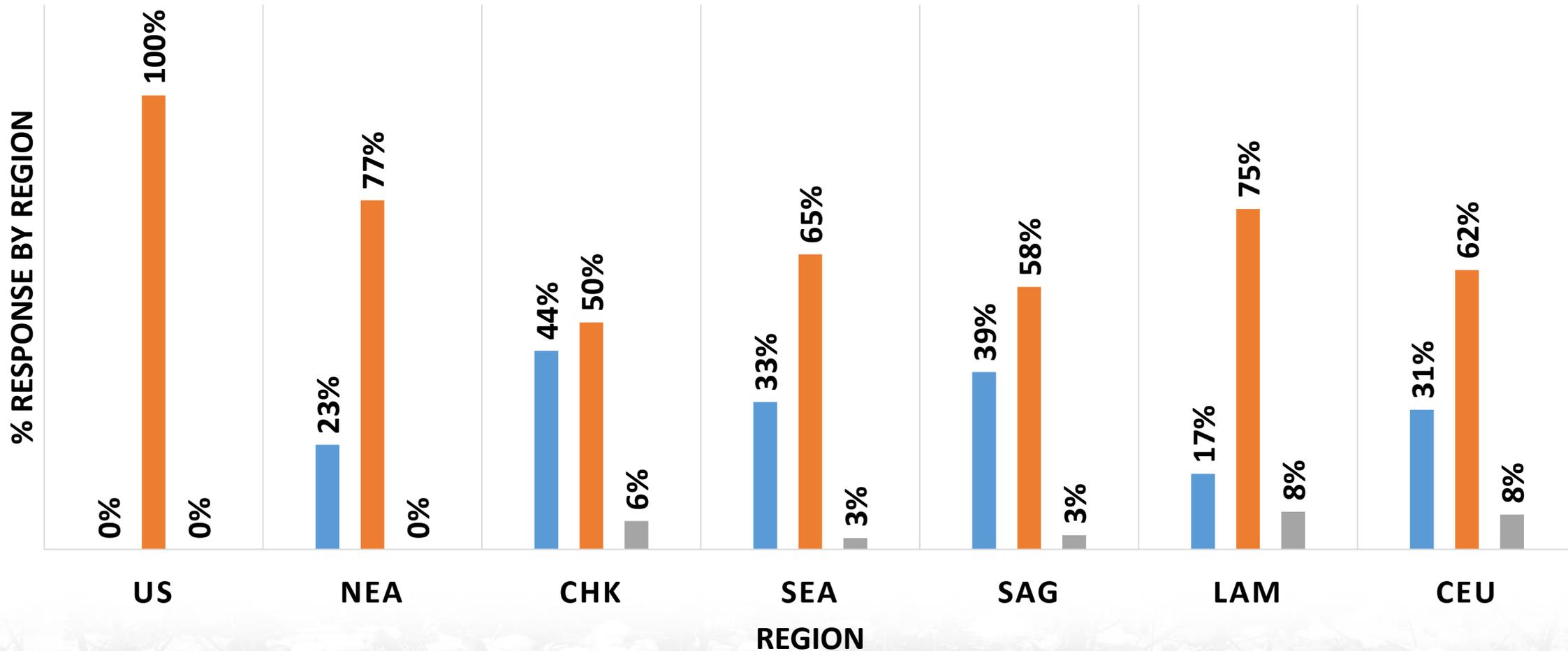
We use both

Base: Global Total (n=167)

Q12a. Overall, how would you prefer a bale of cotton to be secured?

TIE/STRAP PREFERENCE BY REGION

■ Wire ties ■ Polyethylene terephthalate (PET) strap ■ Other



PET Straps are preferred for their ease of use and safety. Wire Ties are preferred for their durability, reduction in contamination and environmentally friendliness.

Preferred Cotton Bale Securing Method

| | Wire Ties (n=57) (A) | PET Straps (n=104) (B) |
|--|----------------------------|------------------------------|
| Ease (Net) | 19% | 54% A |
| Easy to sell | 7 A | 0 |
| Easy to handle | 5 | 20 A |
| Easy to remove/unpack | 4 | 22 A |
| Easy to use | 2 | 5 |
| Safe/Less Chance of Damage/Injury (Net) | 14 | 55 A |
| Safe to Handle/Less Chance of Injury (Subnet) | 4 | 38 A |
| Safe to handle/Safer than other materials | 4 | 30 A |
| Less chance of injury/No damage to people/workers | 0 | 10 A |
| Less chance of a fire/sparking/Not a fire hazard like other material | 5 | 11 |
| Rust/Doesn't rust | 2 | 5 |
| Durability (Net) | 42 B | 10 |
| Sturdy/Durable/Strong | 35 B | 7 |
| Doesn't break apart easily/Less prone to broken pieces | 7 | 3 |
| Reduces contamination issues | 32 B | 9 |
| Environmentally Friendly (Net) | 30 B | 12 |
| Recyclable/Easy to recycle | 16 | 8 |
| Reusable/Can reuse/repurpose | 11 B | 4 |
| No wires/doesn't include steel/iron/metal wires | 0 | 5 A |

“

Wire Ties:
Durable and does not allow bale to open during storage and transportation.

Unlike other packing belts, can reduce contamination of the cotton.

More durable and good for the environment.

Recycle, sustainability, we are against plastic

Safe for cotton bale.

PET Straps:
Metal wires are a serious fire hazard during handling of bales by forklift. Also, there is chance of small pieces of metal wires going into cotton during bale laydown, which can be a serious fire hazard.

Strong, easy to handle, and can be disposed of easily.

Easy to use, easy to pick off the cotton, a simple process that does not contaminate the cotton.

Other (n=6):
Wire may cause a fire; not safe for workers.

Because we can recycle it.

I have sent you many mails, to you and Cotton Inc, etc. regarding a very big problem contamination with the green strap, on the welding part, the plastic melts and traps the cotton and remain on the...”

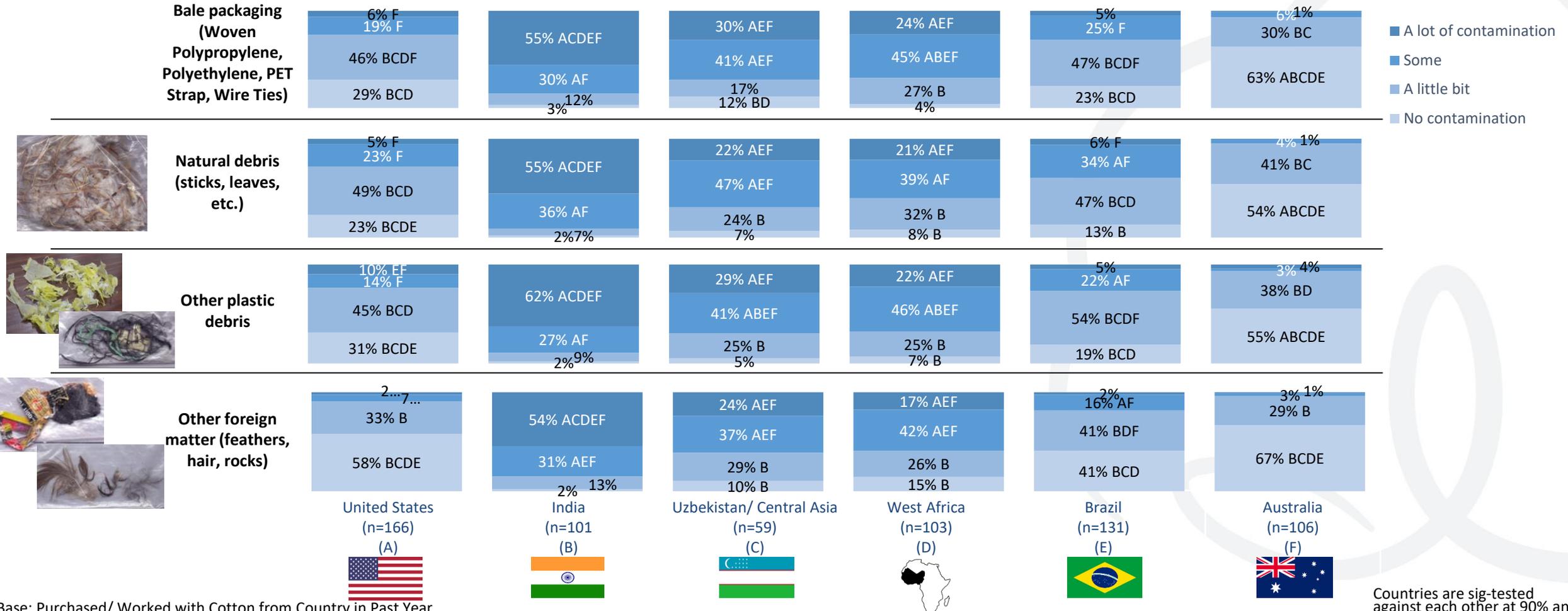
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Base: Prefer Bale Strap Type

Q12b. Why do you prefer [INSERT MATERIAL] for cotton bale strap/ tie material? / Note: Only showing mentions of 5% or higher

India consistently has a lot of contamination of all types. Australia tends to have the least amount of contamination across the board. The USA tends to have at least a little contamination.

Amount of Contamination Encountered by Country



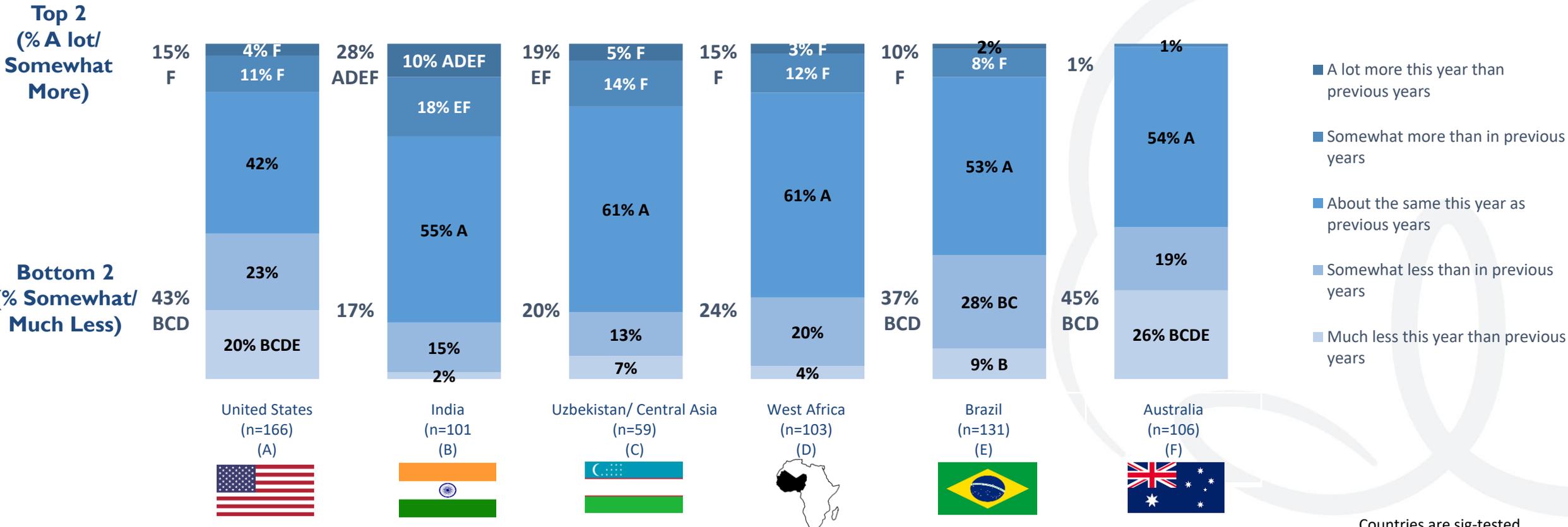
Countries are sig-tested against each other at 90% and shown as A/B/C/D/E/F

Base: Purchased/ Worked with Cotton from Country in Past Year

Q13. In the past year, how much contamination from [INSERT CONTAMINATION TYPE] have you encountered from each of the following countries?

Mills/Manufacturers report that all countries have similar or decreasing amounts of contamination compared to past years. The US, like Australia, tends to have decreasing amounts of contamination.

Amount of Plastic Contamination Encountered by Country



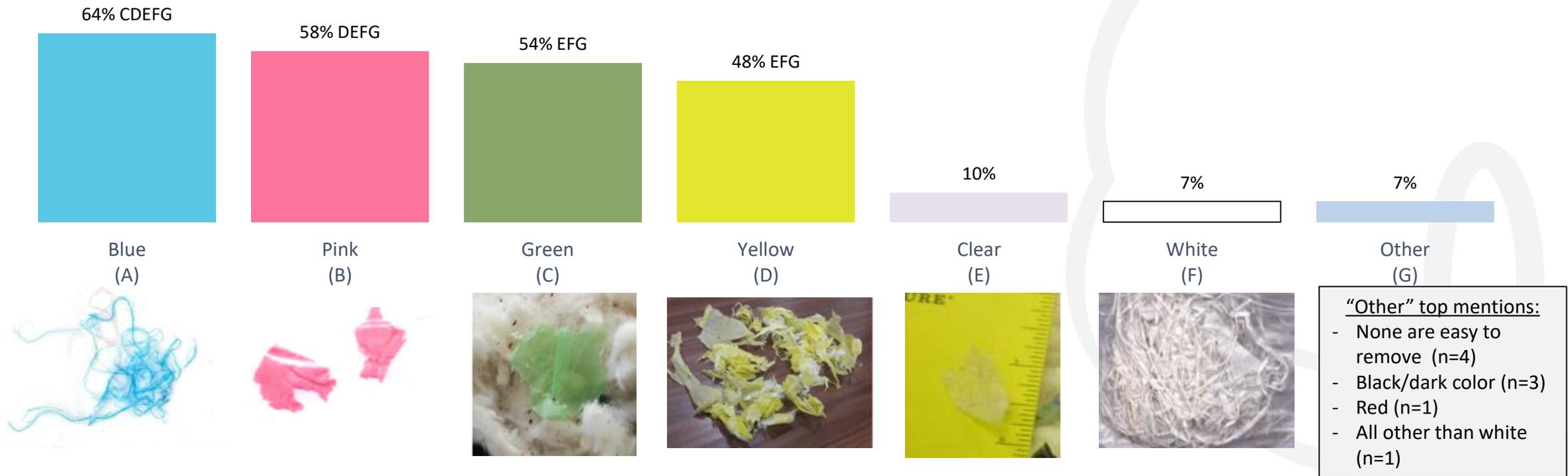
Base: Purchased/ Worked with Cotton from Country in Past Year

Q14. How does the amount of plastic contamination found in the 2019/2020 crop year compare to the amount of plastic contamination from the past several years?

Countries are sig-tested against each other at 90% and shown as A/B/C/D/E/F

Blue, followed by pink, green then yellow are the easiest colors of contamination to identify and remove.

Color of Plastic Contamination Easiest to Identify/Remove

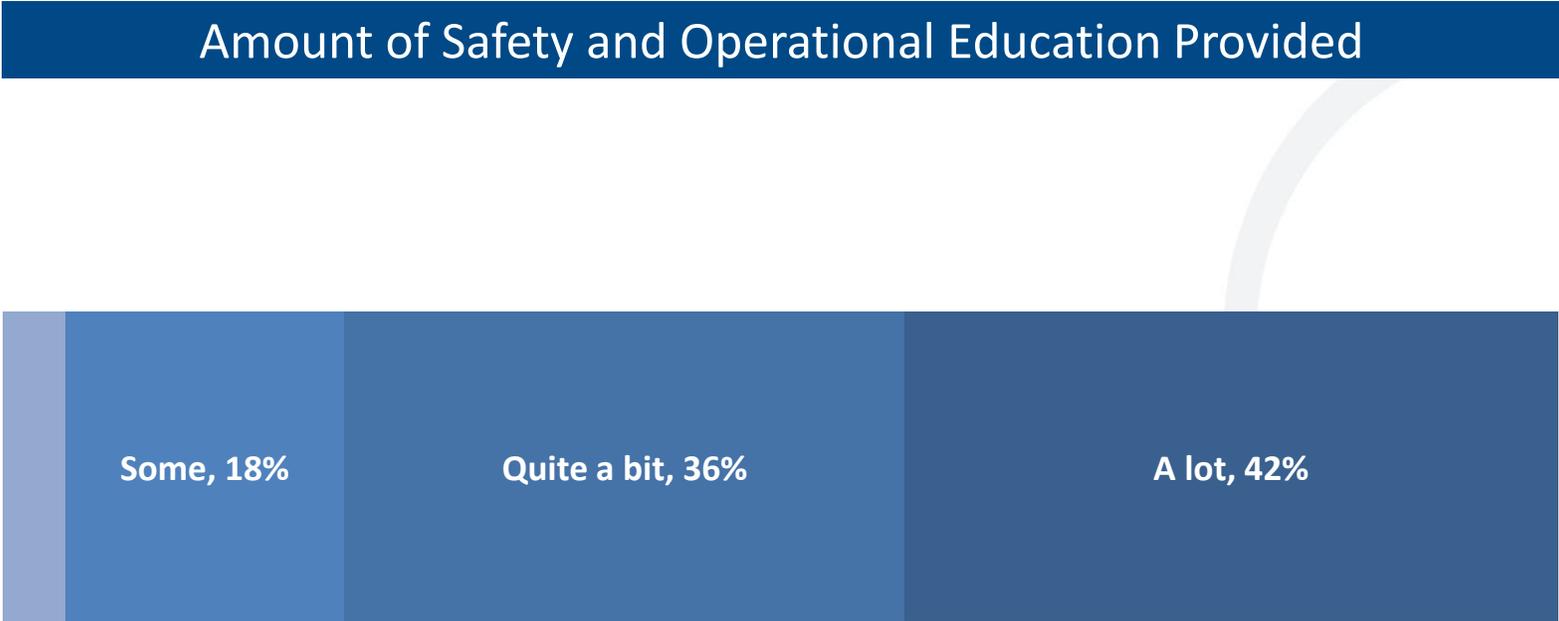


Base: Global Total (n=167)

Q15. Which color of plastic contamination is easiest to identify and remove, if found in baled cotton?

Colors are sig-tested against each other at 90% and shown as A/B/C/D/E/F/G

Most Mills/Manufacturers report safety/operational education in their plant.



Base: Global Total (n=167)

Q16. How much safety and operational education does your mill provide to workers on proper bale handling?

1-in-3 respondents further mentioned issues around contamination from US Cotton.

Additional Feedback on Experience with Contamination from US Cotton Bale Packaging

| Feedback | |
|--|------------|
| Contamination issues (net) | 31% |
| Contamination issues/contamination from bale packaging materials | 15 |
| Colored contamination issues (subnet) | 8 |
| Yellow plastic contamination | 4 |
| Black plastic contamination | 2 |
| Bales contaminated with foreign fibers | 4 |
| Plastic pieces contaminating material | 3 |
| Leaves/twigs/seeds contaminating material | 2 |
| Bale bagging/wrapping (net) | 16 |
| Do not prefer polypropylene bagging/wrapping | 8 |
| Prefer cotton bagging/wrapping | 4 |
| Prefer polyethylene for bale bagging/wrapping | 4 |
| Positive (net) | 16 |
| Good/satisfied with my experience/bales | 6 |
| I have no/less contamination issues | 5 |
| Don't know/nothing additional to add | 43 |

“ We found hundreds of yellow plastic pieces in some bales. Sometimes other colors plastic pieces are also found. It is difficult to identify these bales unless an operator keeps examining the bales in laydown. After identifying the bale, we take out and manually open the entire bale and pick out the contaminations, which number up to 400 pieces in one bale.

US cotton must be contamination free as it is one of the most important features of machine picked cottons. Our customers pay a premium for yarns produced with US cotton and one reason is it is used for very light and very dark colours to avoid coloured contamination and white PP.

The polypropylene warp and packing belt are easily worn resulting in foreign fibers being mixed into the woven fabric through the spinning process; these are difficult to remove resulting in substantial unnecessary labor or wastage!

The outer packaging of American cotton and cotton bales have always been a concern of our cotton-user enterprises. At present, the outer packaging of American cotton is basically by plastic film or plastic woven bags of different colors, and cotton cloth packaging is rarely used. Long distance transit and repeated loading and unloading inevitably leads to some damage to the packaging, and this is particularly serious in China's bonded warehouses. Factories have all along reflected the serious impact on product quality due to the intrusion of filaments from broken packaging into the cotton cleaning process; this has resulted in repeated customer complaints. By this opportunity, I appeal to your association that outer packaging for cotton should best be plastic film, and even if plastic woven bags must be used, these should be separated by different colors.

From last two years, contamination in the US cotton has increased multi fold. We have also lodged complaint in the National Cotton Council of the America on the same. We have already shared the photographs of the contaminants at the dedicated email id for contamination of National Cotton Council of America ...

American cotton wrap has been bothering us with cotton enterprises. At present, the outer packaging of cotton is basically plastic film or a variety of color plastic woven bags, very few cotton packaging. Due to long-distance transportation and multiple loading and unloading to the outer packaging caused a certain degree of damage, especially the domestic bonded warehouse cotton breakage phenomenon is more serious. Factory has been reflected in the broken woven bags (especially white) when the opening of the bag part of the broken wire will be mixed into the clear flower process on the quality of the finished products have a serious impact on the customer complaints. Just take this opportunity to reflect to your association that cotton packaging is best wrapped with plastic film, even with plastic woven bags to distinguish as much as possible with other colors to facilitate picking.

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Base: Global Total (n=167)

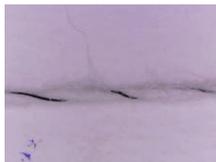
Q17. Do you have any additional feedback regarding your experiences with contamination stemming from U.S. cotton bale packaging? / Note: Only showing mentions of 2% or higher

Continued - Additional Feedback on Experience with Contamination from US Cotton Bale Packaging

“ We are facing yellow plastic contamination in Pima bales for the last 3 to 4 years. We are enclosing the image of the contamination picture.



Bale packing plastic contamination in Upland cotton. One event/year we had founded black contamination into the yarn with abnormal frequency for American cotton.



There was very little contamination before packing in the fields, for approximately 3-4 years it is higher, it is more or less.



Please help us with this contamination problem on the part that the green PET straps are melted. It's a headache for us and our customers. It's the only complaint I can tell you , because US cotton is almost contamination free against other countries.



”

“ There are more serious problems with foreign fibers in American green card cotton, as shown in the picture.



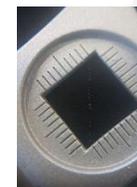
We meet more contamination of bagging in Memphis cotton than Texas cotton. However those are the easier types to remove than in Texas cotton.



Things like steel wire included in bale... ..



Our company produces both thread and cloth for exportation. We have put our signature on everything regarding quality. Custom is valuable, the standard, warranty,... of every product bought.



”

Base: Global Total (n=167)

Q17. Do you have any additional feedback regarding your experiences with contamination stemming from U.S. cotton bale packaging? / Note: Only showing mentions of 2% or higher

China Comment

- The outer packaging of American cotton and cotton bales have always been a concern of our cotton-user enterprises. At present, the outer **packaging of American cotton is basically by plastic film or plastic woven bags of different colors, and cotton cloth packaging is rarely used.** Long distance **transit** and repeated loading and unloading inevitably leads to some **damage** to the packaging, and this is particularly serious in China's bonded warehouses. Factories have all along reflected the serious impact on product quality due to the intrusion of filaments from broken packaging into the cotton cleaning process; this has resulted in repeated customer complaints. By this opportunity, I appeal to your association that **outer packaging for cotton should best be plastic film, and even if plastic woven bags must be used, these should be separated by different colors**

Mexico Comment

- Please help us with this contamination problem on the part that the **green PET straps** are melted its a headache for us and our customers. Its the only complain I can tell you , because **US cotton is almost contamination free against other countries**

Summary of Findings

A blue-tinted landscape photograph of a field with a path leading to a horizon under a cloudy sky. The path is a series of dark, parallel lines that recede into the distance, creating a strong sense of perspective. The field is filled with small, dense plants, and the horizon is a dark, straight line. The sky is filled with soft, white clouds, and the overall color palette is a monochromatic blue.

Summary of Findings

1 Materials used should not contaminate the bale.

- Mills/manufacturers say it's most important the bale bagging and tie/straps do not contaminate the bale and the protect dirt and debris from contaminating the cotton.
- Easy removal, durability and sustainability are also important.

4 Polyethylene Sleeves are the preferred bale patching material.

- Polyethylene Sleeves (have issues less frequently).
- Notably, some Mills/Manufacturers wrote in "Cotton" as their preferred bale patching material.
- With the popularity of this material for bale packaging and tie material, it may have been a strong contender had it been included in the list.

2 Cotton is the preferred bale bagging material and closure.

- Over half of Mills/Manufacturers prefer Cotton because it delivers on what's important: no contamination, sustainability, and ease of use.
- Additionally, it can be recycled, reused or sold for recycling/waste, and is recycled at higher rates than plastic materials.
- For the same reasons, Cotton Twine is the preferred material for ties.

5 Other preferences are clear related to tags and ties.

- Adhesive tags are preferred to paper hang tags.
- Mills/Manufacturers tend to prefer PET Straps (62%) to Wire Ties (34%).
- PET Straps are easier work with and handle safely, while Wire Ties are slightly more durable than PET Straps and less likely to contaminate the bale, but aren't as safe or easy to work with.
- Both are recycled, and PET Straps are more commonly thrown away than wire ties.

3 Still, most Mills/Manufactures won't pay more for Cotton Bale Bagging.

- 71% say they won't pay more.
- Of the remaining Mills/Manufacturers who will pay more, most won't pay more than 1% more.

6 Newsletters and the Cotton USA events/websites are key channels.

- Cotton from the US tends to have at least a little contamination.
- US Cotton is moving in the right direction, with **2-in-5 Mills/Manufacturers reporting the US has decreasing amounts of contamination.**
- Still, Australia Cotton tends to be less contaminated.



THANKS FROM C+R

Hillary Stifler

HillaryS@crresearch.com

Joanna Surma

JoannaS@crresearch.com

312-828-9200

crresearch.com



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